مجانا وحصريا

حمل الآن

المراجعة رقم (1)





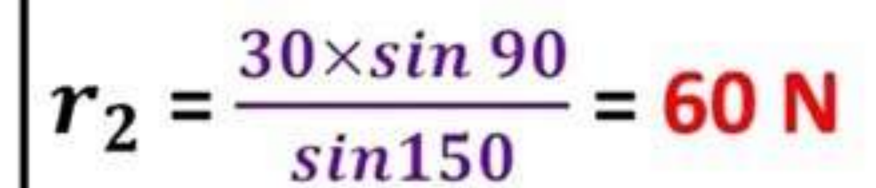




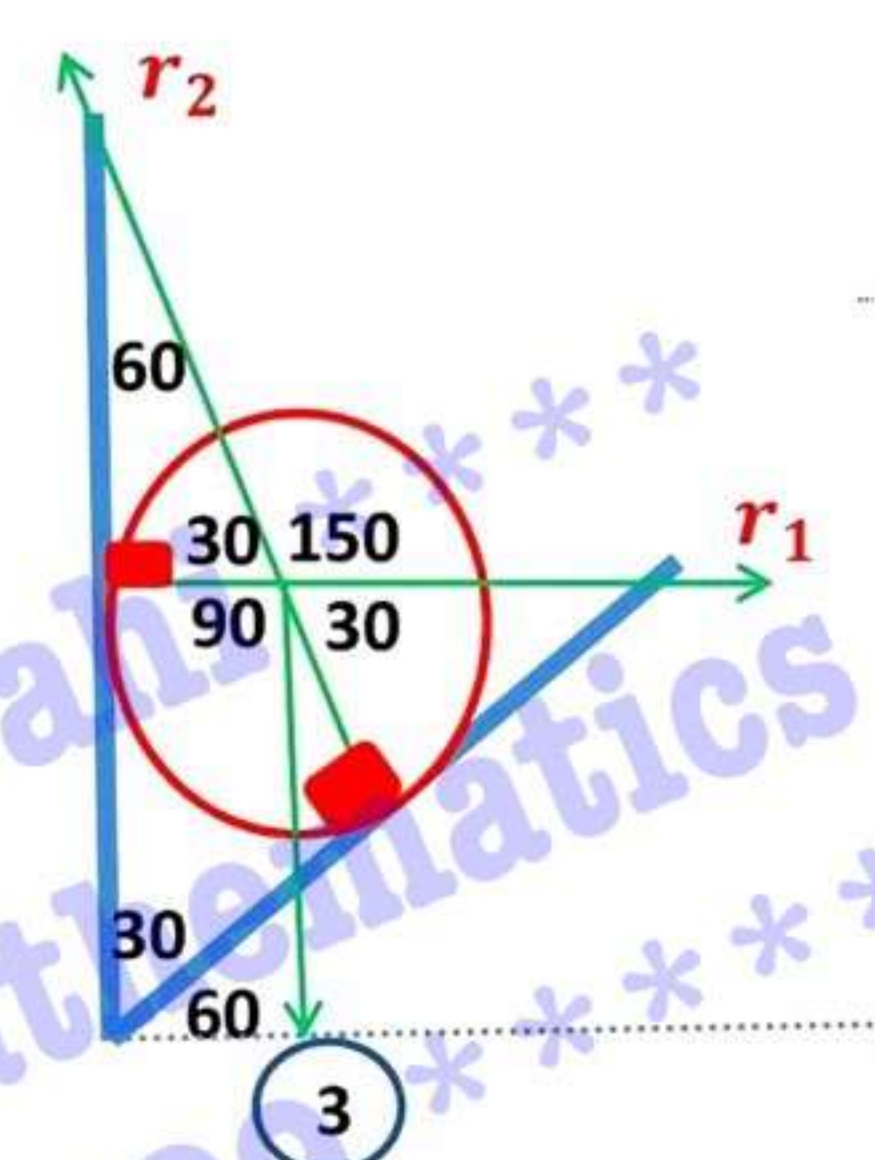
1 A smooth sphere of weight 30 newton stable between a smooth vertical wall and a smooth plane inclined to the horizontal with angle of measure 60 .then the pressure on the inclined plane = ……… newton .

(a)30 60 (c)$30\sqrt{3}$ (d) $60\sqrt{3}$

$$\frac{r_1}{\sin 120} = \frac{r_2}{\sin 90} = \frac{30}{\sin 150}$$



$$r_2 = \frac{30 \times \sin 90}{\sin 150} = 60\text{ N}$$

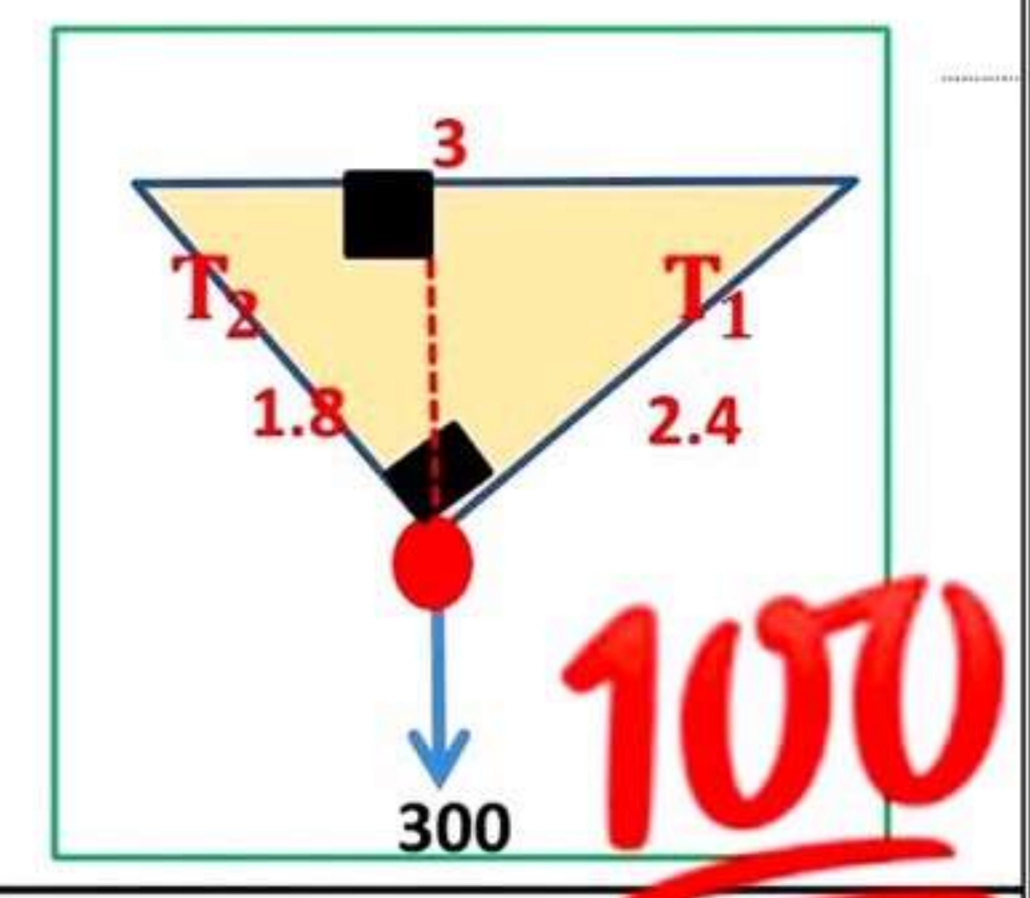


2 A weight of magnitude 300 newton suspended by two light strings of lengths 1.8m , 2.4m , from two points on one horizontal line the distance between them is 3m , then the magnitude of tension in each of the two strings are …… newton .

(a) (1.8 , 2.4) (b) (300 , 300) (180 , 240) (d) (150 150)

$1.8^2 + 2.4^2 = 3^2$ (triangle is right)

$$\frac{T_1}{1.8} = \frac{T_2}{2.4} = \frac{300}{3}$$



3 A pyramid its base is an **equilateral triangle** whose side length is **6 cm** and its volume is **81 cm^3**, then its height equal ……..cm

(a) $6\sqrt{3}$ (b) $9\sqrt{3}$ (c) 9 (d) $3\sqrt{3}$

Area base (triangle) = $\frac{1}{2} \times 6 \times 6 \sin 60 = 9\sqrt{3}$

V= $\frac{1}{3} \times$ area base $\times$ h

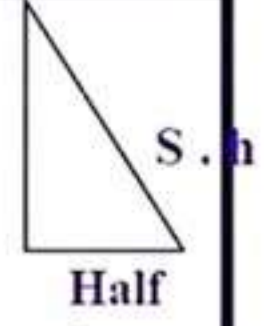
$81 = \frac{1}{3} \times 9\sqrt{3} \times h$ so $h = \frac{81}{\frac{1}{3} \times 9\sqrt{3}}$

<u>Volume</u> = $\frac{1}{3} \times b.A \times h$

<u>Side</u> = $\sqrt{area}$

L . A = $\frac{1}{2}$ × p . of base × S . h

P . square = side × 4



4 A right cone its volume **100 cm^3**, and its height **10cm** then its **base area** = …….. cm^2

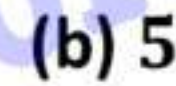
(a) 10  30 (c) 60 (d) 100

$100 = \frac{1}{3} \times A \times 10$

Area base = $\frac{100}{\frac{1}{3} \times 10}$ = 30cm

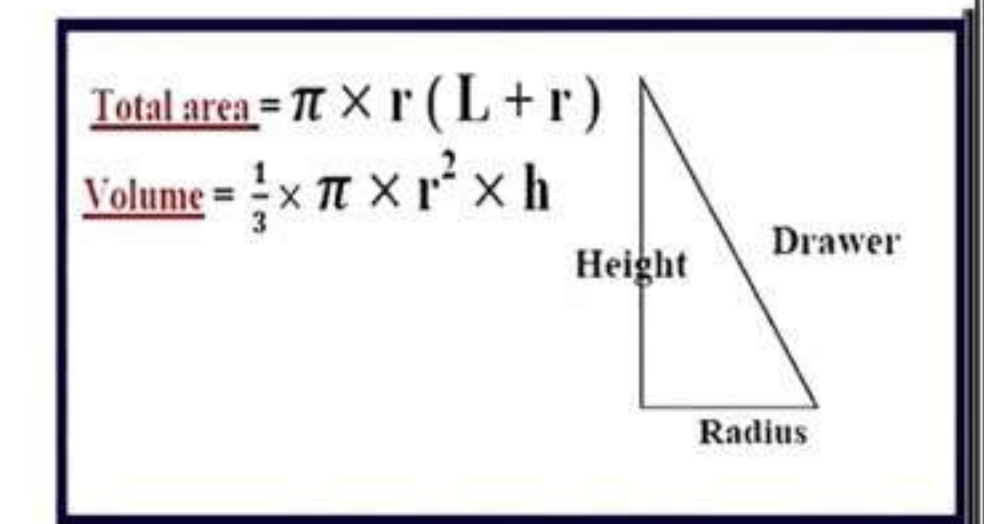
<u>Volume</u> = $\frac{1}{3}$ × Area of base × height = $\frac{1}{3} \times \pi r^2$

5 **A right cone** the length of its drawer equal **10 cm**, and its total area **96π cm^2** then the length of **radius** = ……. Cm

(a) 10  (b) 5 (c) 16  6

$96\pi = \pi r(r + 10)$

$r^2 + 10r - 96 = 0$ (calculator)









6

The circumference of the circle whose equation $(x - 3)^2 + (y + 2)^2 = 25$ = ……… unit length .

(a) 2π ● 10π (c) 3π (d) 25π

$r = \sqrt{25} = 5$

$$(x - d)^2 + (y - h)^2 = r^2$$

Circumference = $2\pi r$

7

Two equal forces meeting at a point , the value of each force equal 6 newton and their resultant equals 6 newton then the measure of the angle between them = ………°

(a) 60 (b) 90 ● 120 (d) 150

$R = 2f\cos\frac{\alpha}{2}$, $6 = 2 \times 6 f \cos\frac{\alpha}{2}$, $\cos\frac{\alpha}{2} = \frac{1}{2}$, $\frac{\alpha}{2} = 60$ so $\alpha = 120$

8

Two forces 30 and 50 newton and the angle between them equals 60^0 then their resultant = ……… Newton .

(a) 60 ● 70 (c) 80 (d) 20

$$R^2 = F_1^2 + F_2^2 + 2F_1F_2\cos\alpha$$

$$R = \sqrt{30^2 + 50^2 + 2 \times 50 \times 30\cos 60}$$

9

Two forces act at a point their magnitudes 4 , 5 newton and $\cos\theta = 0.6$ where θ is the angle between them , then the magnitude of the resultant force which is equilibrium with their resultant = …… newton .

(a) $\sqrt{17}$ (b) $-\sqrt{17}$ ● $\sqrt{65}$ (d) $-\sqrt{65}$

$$R = \sqrt{4^2 + 5^2 + 2 \times 4 \times 5 \times 0.6}$$

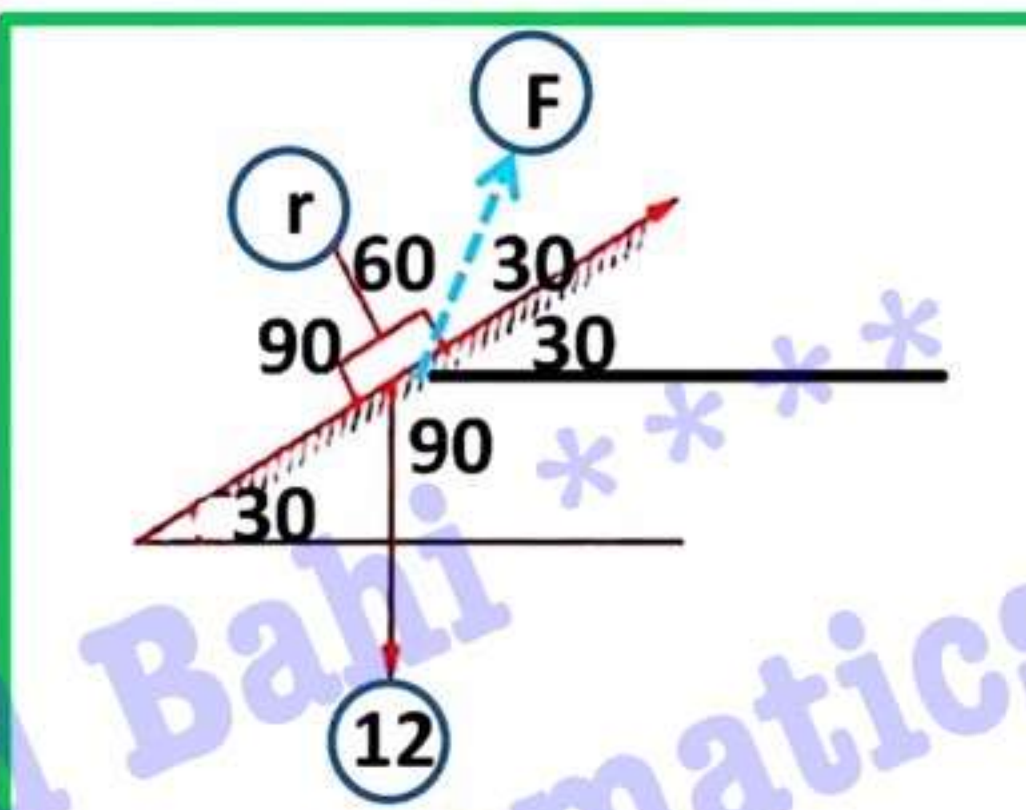


10 A body of weight 12 newton is placed on a smooth plane inclined to the horizontal with angle of measure 30° ,The body is prevented from sliding by a force which forms with the horizontal an angle of measure 60 Upwards , then the value of this force is equal …….newton .

(a) $2\sqrt{3}$ (b) $6\sqrt{3}$  $4\sqrt{3}$ (d) 6

$$\frac{F}{\sin 150} = \frac{12}{\sin 60} = \frac{r}{\sin 150}$$

$$F = \frac{12 \sin 150}{\sin 60}$$



11 IF: $\vec{f}_1 = 2\vec{i} + k\vec{j}$, $\vec{f}_2 = -9\vec{i} + 4\vec{j}$, $\vec{f}_3 = m\vec{i} - 3\vec{j}$, three coplaner forces meeting at a point and at equilibrium , then the value of m and k are ……

(a) (7 , 7) (b) (7 , -1) (c) (-1 4) (d) (0 , 0)

$\vec{f}_1 + \vec{f}_1 + \vec{f}_1 = \vec{0}$

2 + -9 + m = 0 , -7 + m = 0 , m = 7

K + 4 + -3 = 0 , k +1 = 0 , k = -1

12 Regular quadrilateral pyramid the side length of its base equal 6 cm and its volume = $48 cm^3$, then the length of slant height = …… cm

(a) 5 (b) 6 (c) 8 (d) 48

$48 = \frac{1}{3} \times 6 \times 6 \times h$, $h = \frac{48}{12} = 4$ cm

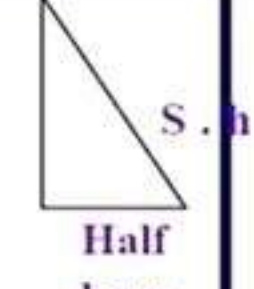
Slant height = $\sqrt{3^2 + 4^2}$

Volume = $\frac{1}{3} \times b.A \times h$

Side = $\sqrt{area}$

L . A = $\frac{1}{2} \times$ p . of base × S . h

P . square = side × 4



13

A right cone of radius length = 15 cm and its height = 20 cm , then the length of its drawer = …….. cm

(a) 5 (b) 9 ● 25 (d) 35

Slant height = $\sqrt{15^2 + 20^2}$

14

The equation of the diameter of the circle whose center is (6 , -3) and passes through the point (0 , 0) is ………..

(a) 2x + y = 0 (b) 2x – y = 0 (c) x-2y = 0 ● x + 2y = 0

slope = $\frac{-3-0}{6-0} = \frac{-1}{2}$

Equation of s .line : y = mx +c

Slope = $\frac{y_2 - y_1}{x_2 - x_1}$

y = mx + c , y = $\frac{-1}{2}$ x + c (0 , 0) satisfies

c = 0 , y = $\frac{-1}{2}$ x , 2y + x = 0

15

Two forces of magnitudes 6 , F N and the angle between them 120 if their resultant is perpendicular to the first force , then F = ……….. N

(a) $12\sqrt{3}$ (b) $6\sqrt{3}$ ● 12 (d) 6

6 + fcos 120 = 0 , fcos 120 = -6

F = $\frac{-6}{\cos 120}$

If : $R \perp f_1$

$f_1 + f_2 \cos\alpha = 0$

$R^2 = (f_2)^2 - (f_1)^2$

16

When we resolve the force 20 N into two perpendiculars forces , one of the two forces makes an angle of measure 30 with the force , then the magmetudes of the two forces are ………………. N

● $(10 , 10\sqrt{3})$ (b) (20 , 20) (c) (10 , 10) (d) (5 , 15)

The 2 component is (20sin30 , 20 cos30)

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17 Two forces 8 , $4\sqrt{2}$ N the angle between them is 135° ,then the measures of the angle between their resultant and the first force is ……………………

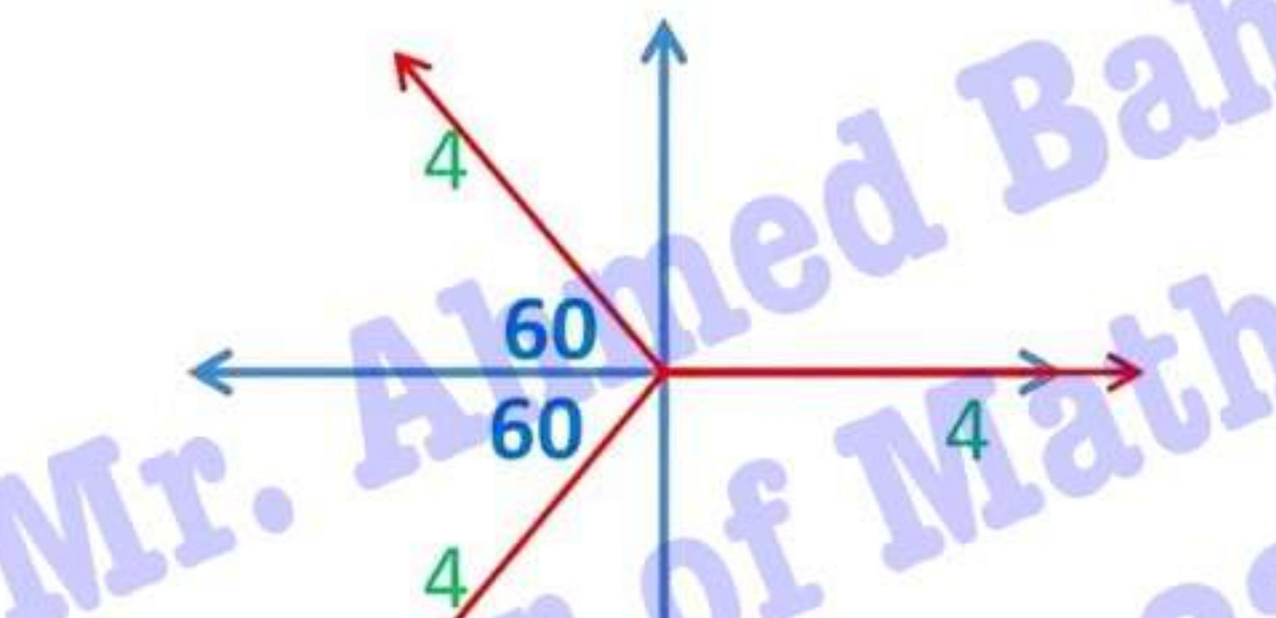
(a) 45 (b) 135 (c) 90 (d) 120

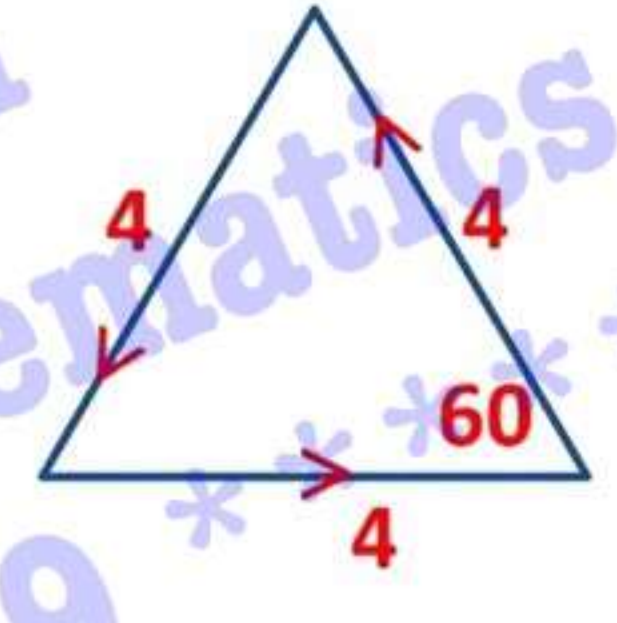
$$\text{Tan}\ \theta = \frac{4\sqrt{2}\ \sin 135}{8+4\sqrt{2}\ \cos 135} = 1$$

$$\tan\theta = \frac{f_2 \sin\theta}{f_1 + f_2\cos\theta}$$

18 Three forces of magnetudes 4 , 4 , 4 N act at a points in directions parallel to the side of an equilateral triangle in one cyclic order then the magnetudes of the resultant is ………………… N

(a) 4 (b) 0 (c) 12 (d) $4\sqrt{3}$





X = 4cos0 + 4cos120 + 4cos240 = 0

y = 4sin0 + 4sin120 + 4sin240 = 0 R = 0

19 Two forces of magnitudes F , 2 F newton act at a particle , and the line of action of its resultant is perpendicular to one of the two forces , then the measure of the included angle between the two forces = ……………

(a) 60° (b) 90° (c) 120° (d) 135°

$f + 2f\cos\alpha = 0$

If: $R \perp f_1$

$f_1 + f_2\cos\alpha = 0$

$R^2 = (f_2)^2 - (f_1)^2$

$2f\cos\alpha = -f$, $\cos\alpha = \frac{-f}{2f} = \frac{-1}{2}$

20

A uniform rod of length 50 cm and weight 500gm .wt . was susbended from its terminals with the two strings such that the two ends are fixed in one point . If the length of two strings are 30 cm , 40 cm then the tension in of the two strings are ……………gm.wt

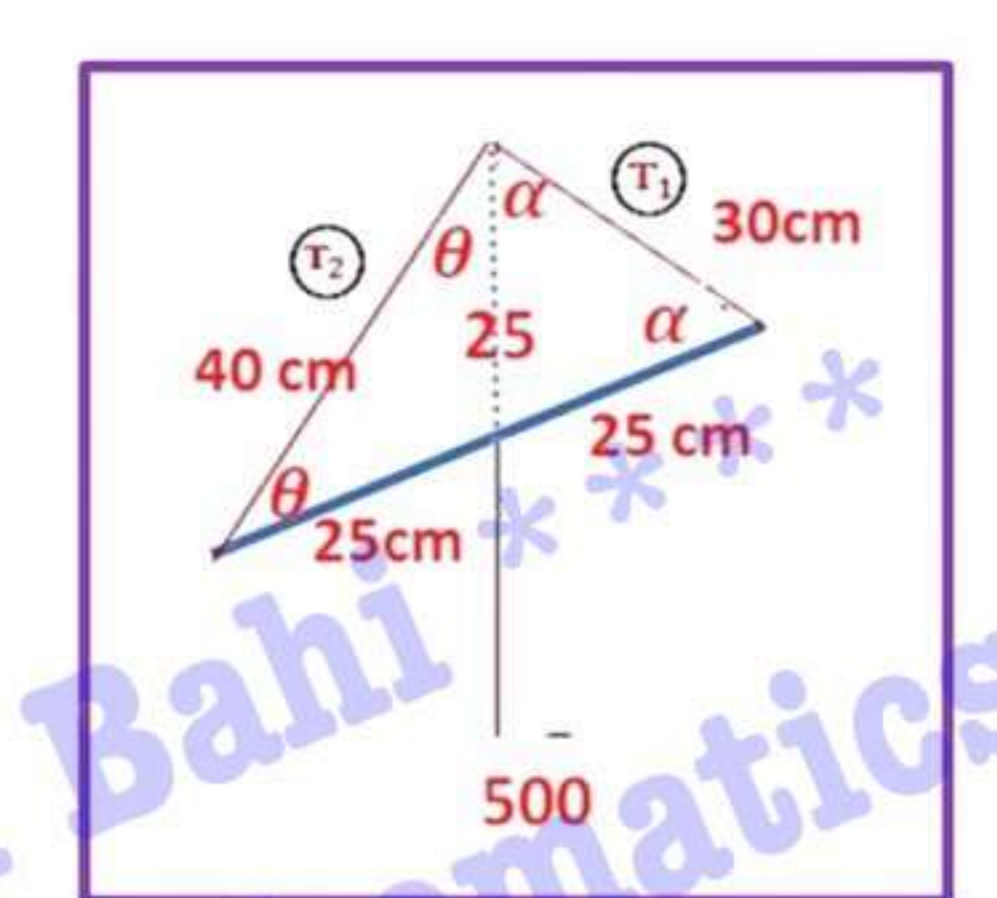
(a) $(100 , 100\sqrt{3})$ (300 , 400) (c) (30 , 40) (d) (50 , 150)

(3 0 , 40 , 50) is right angled triangle

$\sin\alpha = \frac{o}{h} = \frac{40}{50}$, $\sin\theta = \frac{o}{h} = \frac{30}{50}$

$\frac{T_1}{\sin\theta} = \frac{500}{\sin 90} = \frac{T_2}{\sin\alpha}$

$\frac{T_1}{\frac{3}{5}} = \frac{500}{\sin 90} = \frac{T_2}{\frac{4}{5}}$



21

Two forces of magnitudes 8 , F newton act , at a particle , if the measure of the included angle is 120° , and their resultant $F\sqrt{3}$ newton , then F = …………… newton.

 4 (b) $4\sqrt{2}$ (c) $4\sqrt{3}$ (d) 8

$(\sqrt{3}f)^2 = 8^2 + f^2 + 2 \times 8 \times f \cos 120$

$3f^2 = 64 + f^2 - 8f$, $3f^2 - f^2 + 8f - 64 = 0$

$2f^2 + 8f - 64 = 0$

$R^2 = F_1^2 + F_2^2 + 2F_1F_2\cos\alpha$

22

If $\overrightarrow{F_1}$, $\overrightarrow{F_2}$ and $\overrightarrow{F_3}$ are three forces meeting at a point and they are in equilibrium , then the magnitude of the resultant of $\overrightarrow{F_1}$ and $\overrightarrow{F_2}$ = ……………

(a) F_1 $F_1 + F_2$ (c) F_3 (d) zero



22

If O is the origin of perpendicular Cartisian coordinate plane and $\overrightarrow{F} = (8$ kg.wt. , $135°)$ is a force acts at the point O , then the component of $\overrightarrow{F}$ in direction of y-axis equals ....

(a) $-4\sqrt{2}$ (b) $4\sqrt{2}$ (c) $4\sqrt{3}$ (d) 4

(8cos 135 , 8sin 135) = ($-4\sqrt{2}$, $4\sqrt{2}$)

23

The length of the drawer of a right circular cone is 17 cm. and its height = 15 cm. , then its total surface area = ... cm^2.

(a) 200π (b) 136π (c) 320π (d) 400π

$r = \sqrt{17^2 - 15^2} = 8$cm

Total area = $\pi r (r + L) = 8\pi(8 + 17) = 200\pi$ cm^2

24

The equation of the circle which its centre $(-4, 3)$ and passes through the origin point is ....

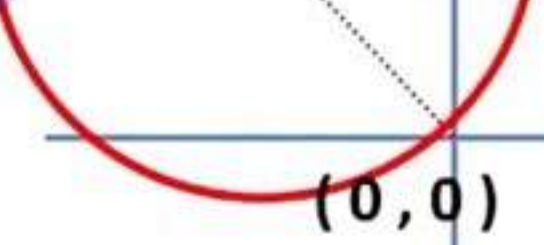
(a) $(x + 4)^2 + (y - 3)^2 = 5$ (b) $(x - 4)^2 + (y + 3)^2 = 25$

(c) $(x + 4)^2 + (y - 3)^2 = 625$ (d) $(x + 4)^2 + (y - 3)^2 = 25$

*Distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

radius = $\sqrt{(-4 - 0)^2 + (3 - 0)^2}$

$(x - d)^2 + (y - h)^2 = r^2$



(0 , 0)

25

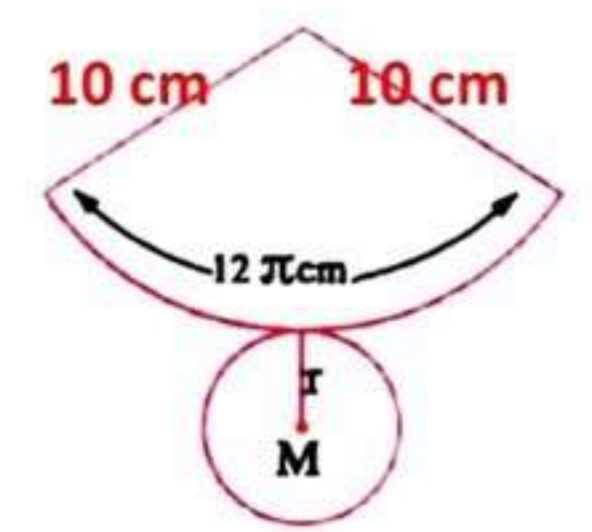
The maximum and minimum value respectively of the resultant of the two forces of magnitudes 8 , 13 newton are .... newton.

(a) 13 , 8 (b) 13 , 5 (c) 21 , 8 (d) 21 , 5



26

The opposite figure describes a solid its volume = 96π cm^3, its total surface area = ... cm^2



 96π ⓑ 48π

ⓒ 32π ⓓ 16π

Radius = $\frac{circumference}{2\pi} = \frac{12\pi}{2\pi}$ = 6

Total area = π r (r + L) , Total area = $\pi \times 6$ (6 + 10)

27

Given : $\overrightarrow{F_1} = 5\hat{i}$, $\overrightarrow{F_2} = 7\hat{i} - 5\hat{j}$, $\overrightarrow{R}$ is their resultant then $\|\overrightarrow{R}\|$ = ...

(a) $\sqrt{5}+\sqrt{74}$ (b) 49  13 (d) $\sqrt{12}-\sqrt{5}$

R =(12 , -5) , $\|R\| = \sqrt{12^2 + (-5)^2}$

28

The general form of the equation of the circle where its centre is (2 , – 1) and radius length is 3 cm. is ....

● $x^2 + y^2 - 4x + 2y - 4 = 0$ ⓑ $x^2 + y^2 - 2x + y - 4 = 0$

ⓒ $x^2 + y^2 + 4x - 2y - 4 = 0$ ⓓ $x^2 + y^2 - 4x + 2y - 16 = 0$

The general form of the circle equation is :

$x^2 + y^2 + 2Lx + 2Ky + C = 0$

L = -2 , K = 1 , r = 3

$c = L^2 + k^2 - r^2$

$C = (-2)^2 + (1)^2 - 3^2 = -4$

29

If three forces meeting at a point and acting up on a particle are in equilibrium, then the magnitude of each force is proportional to the .... of the included angle between the two other forces.

ⓐ cosine ● sine ⓒ tangent ⓓ cotangent



30

A regular quadrilateral pyramid. The perimeter of its base = 40 cm. and its height 12 cm. , then its surface area = ... cm^2

(a) 200 (b) 240 (c) 260 (d) 320

Side = $\frac{perimeter}{4} = \frac{40}{4}$ = 10 cm

Slant height = $\sqrt{12^2 + 5^2} = 13\ cm$

Lateral area = $\frac{1}{2} \times$ $perimeter\ base \times slant\ height$ = = $\frac{1}{2} \times 40 \times 13$

31

The skew lines ....

(a) never intersect.
(b) are not perpendicular.
(c) are not parallel.
(d) are neither parallel nor intersecting.

32

The radius length of the base of a right circular cone is 15 cm. , and its height = 20 cm. , then its lateral area = ... cm^2

(a) 600 π (b) 375 π (c) 1875 π (d) 5625 π

drawer = $\sqrt{20^2 + 15^2} = 25\ cm$, Lateral area = π r L = $\pi \times 15 \times 25$

33

The general form of the equation of the circle which its centre is (– 2 , 5) and passes through (3 , 2) is ....

(a) $x^2 + y^2 - 4x + 10y - 5 = 0$
(b) $x^2 + y^2 + 4x - 10y - 5 = 0$
(c) $x^2 + y^2 + 2x - 5y - 5 = 0$
(d) $x^2 + y^2 + 4x - 10y - 25 = 0$

radius = $\sqrt{(-2-3)^2 + (5-2)^2} = \sqrt{34}$

c = $L^2 + k^2 - r^2$

L = 2 , K = -5

C = $(2)^2 + (-5)^2 - \sqrt{34}^2 = -5$

The general form of the circle equation is :

$x^2 + y^2 + 2Lx + 2Ky + C = 0$

34

If $x^2 + y^2 + 2(\cos\theta)x - 2(\sin\theta)y - 8 = 0$ represents the equation of a circle, then r = ... length unit.

(a) $\sqrt{2}$ (b) $2\sqrt{2}$  3 (d) 8

$r = \sqrt{L^2 + k^2 - c}$

$L = \frac{2\cos\theta}{2} = \cos\theta$, $k = \frac{-2\sin\theta}{2} = -\sin\theta$

C = -8

radius = $\sqrt{\cos\theta^2 + (-\sin\theta)^2 - -8}$ = 3cm

35

Two forces of magnitudes 8 , F gm.wt. and the measure of the included angle $\in]0, \pi[$, the line of action of their resultant bisects the included angle, then F = ... gm.wt.

(a) $2\sqrt{2}$ (b) 4 (c) 8 (d) 16

36

Number of the planes which passes through two given points is ....

(a) zero. (b) 1 (c) 2 (d) infinite.

37

If the resultant of two forces acting at a point reaches the maximum value, then the measure of the angle between their line of actions equals ....

(a) 180° (b) 120° (c) 0° (d) 60°

38

The point which lies on the circle $(x-2)^2 + y^2 = 13$ is ....

(a) (2 , 3) (b) (3 , −2) (c) (2 , 5) (d) (4 , 3)

39

Which two forces from the following pairs, could not have resultant with magnitude = 4 newton ?

(a) 2 newton , 4 newton
(b) 3 newton , 3 newton
(c) 2 newton , 6 newton
(d) 3 newton , 8 newton

Because 8 - 3 = 5 , 8 + 3 = 11

R $\in$ [*minimum* , *maximum*]



40

Two forces of magnitudes 5 F , 2 F and their resultant is 7 F newton , then the measure of the angle between them = ...

(a) 180° (b) 60° (c) 20° (d) zero.

41

The lateral surface area of a right circular cone , radius length of its base = 6 cm. and its height = 8 cm. equals .... cm^2

(a) 60 π (b) 28 π (c) 10 π (d) 48 π

Lateral area = $\pi \times r \times L$

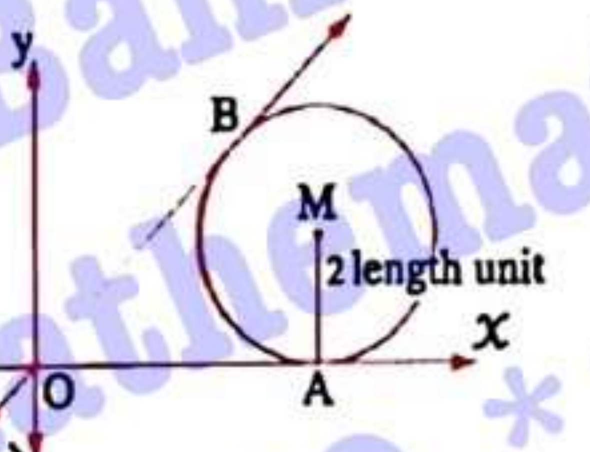
42

In the opposite figure :

If OB = 5 length unit , then the equation of the circle M is ....

(a) $(x-2)^2+(y-5)^2=25$ (b) $(x-2)^2+(y-5)^2=4$

(c) $(x-5)^2+(y-2)^2=25$ (d) $(x-5)^2+(y-2)^2=4$



$$(x-d)^2+(y-h)^2=r^2$$

43

Two forces of magnitudes 4 , F newton act at a particle , the measure of included angle is 120° , if line action of the resultant is perpendicular to the first force , then magnitude of the resultant = ... newton.

(a) $4\sqrt{2}$ (b) $4\sqrt{3}$ (c) 4 (d) $4\sqrt{5}$

If : $R \perp f_1$

$$f_1 + f_2 \cos\alpha = 0$$

$$R^2 = (f_2)^2 - (f_1)^2$$



44

The equation $(x \ y \ 8)\begin{pmatrix} x \\ y \\ -2 \end{pmatrix} = \square$ represents a circle its diameter length = ... length unit.

(a) 2 (b) 4 (c) 6 (d) 8

$x^2 + y^2 = r^2$

45

All of the following cases form a plane except ....

(a) a straight line and a point do not belong to it.

(b) two different parallel straight lines.

(c) two intersected straight lines.

(d) two skew straight lines.

46

Two perpendicular forces of magnitudes 12 newton , 5 newton , act at a point , then the magnitude of their resultant .... newton.

(a) 5 (b) 12 (c) 13 (d) 17

$R^2 = (f_1)^2 + (f_2)^2$

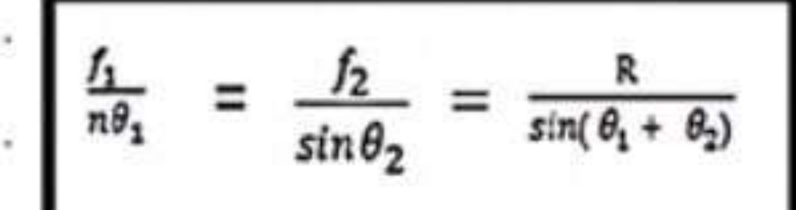
47

In the opposite figure :

The force of magnitude 12 newton is resolved into two components $\overrightarrow{F_1}$, $\overrightarrow{F_2}$ make angles of measures 30° , 90° , then F_2 = ... newton.

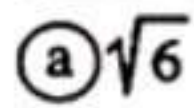
(a) 10 (b) $10\sqrt{3}$

(c) $6\sqrt{3}$ (d) $4\sqrt{3}$





48 In a trianglular pyramid of regular faces , if the sum of lengths of its edges = 36 cm. , then the height of the pyramid = ... cm.

 ⓐ $\sqrt{6}$  ● $2\sqrt{6}$  ⓒ 6 ⓓ 4

$3h^2 = 2 \times 6^2$,
$h^2 = 24$

$3h^2 = 2L^2$

$L = \frac{sum}{6} = \frac{36}{6} = 6$ cm

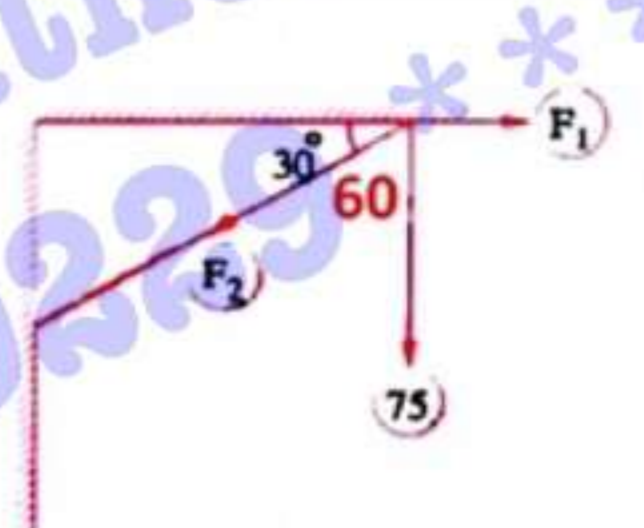
Type equation here.

49 Two forces of magnitudes 6 , 2.5 newton the magnitude of their resultant = 6.5 newton , then measure of the included angle of the two forces is ....

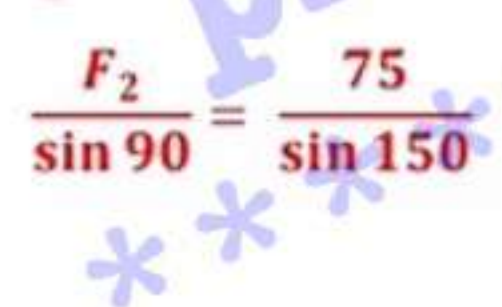
ⓐ acute. ⓑ obtuse.  ● right. ⓓ straight.

$\cos\alpha = \frac{R^2 - f_1^2 - f_1^2}{2f_1 f_2}$

50 **In the opposite figure :**
A vertical force of magnitude is resolved into two components , one of them is horizontal (F_1) and the other F_2 , then F_2 = ... newton.



ⓐ 75 ⓑ $75\sqrt{3}$
● 150 ⓓ $150\sqrt{3}$



$\frac{F_2}{\sin 90} = \frac{75}{\sin 150}$

lami's rule :

$\frac{f_1}{\sin\theta_1} = \frac{f_2}{\sin\theta_2} = \frac{f_3}{\sin\theta_3}$

51 Two forces F , F act at a particle and the magnitude of their resultant is F , then the measure of the included angle of the two forces = ...

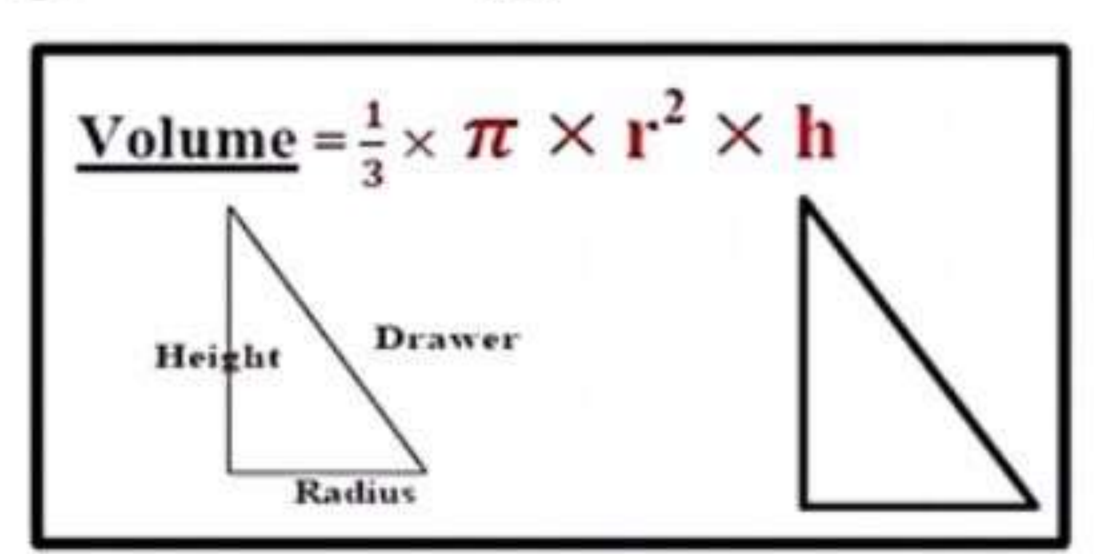
ⓐ 60° ⓑ 45° ● 120° ⓓ 135°

52 The height of a right circular cone is 12 cm. and the length of its drawer is 15 cm. , then its volume = ... cm^3



(a) 324π (b) 715π (c) 32π (d) 180π





53 The volume of the right cone , the circumference of its base is 44 cm. and its height is 15 cm. equals .... cm^3 $\left(\pi \simeq \frac{22}{7}\right)$

(a) 77 (b) 105 (c) 110 (d) 770

Volume = $\frac{1}{3} \times \pi \times r^2 \times h$

Circmference = $2 \times \pi \times r$

54 Three forces are equal in magnitude and meeting at a point are in equilibrium , then the measure of the angle between any two of them is ....

(a) 60° (b) 120° (c) 90° (d) 150°

55 The centre of the circle : $x^2 + y^2 - 6x + 8y = 0$ is the point ....

(a) $(3, -4)$ (b) $(-4, 3)$ (c) $(-3, 4)$ (d) $(-3, -4)$

center = $(-L, -M) = \left(-\frac{1}{2} \text{ coefficient } x, -\frac{1}{2} \text{ coefficient } y\right)$

56 Which of the following system of forces can not be equilibrium ?

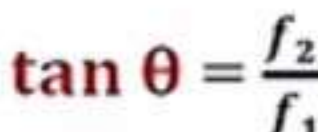
(a) 10 newton , 10 newton , 5 newton.
(b) 4 newton , 6 newton , 8 newton.
(c) 11 newton , 7 newton , 8 newton.
(d) 8 newton , 4 newton , 14 newton.

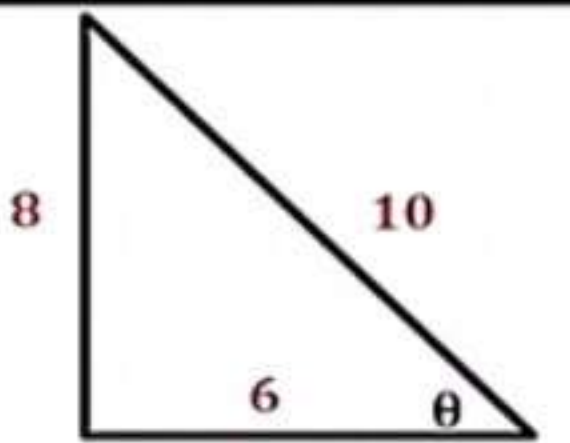


57 When the two forces 6 and 8 newtons are perpindicular , then the sine of inclinition of the resultant with the first force equals ....

ⓐ $\frac{3}{5}$ ● $\frac{4}{5}$ ⓒ $\frac{3}{4}$ ⓓ $\frac{4}{3}$

If : $f_1 \perp f_2$





58 Any three points are non-collinear identify ....

● one plane. ⓑ two planes. ⓒ 3 planes. ⓓ 4 planes.

59 Type equation here.

A force of magnitude $5\sqrt{3}$ newton act in direction 30° east of north , is resolved into two perpendicular components , then the magnitude of its component in direction the east = ...

ⓐ 5 ⓑ 7.5 ● $\frac{5\sqrt{3}}{2}$ ⓓ 15



60 Volume of a regular quadrilateral pyramid is 400 cm³ and its height is 12 cm. , then its lateral surface area = ... cm².

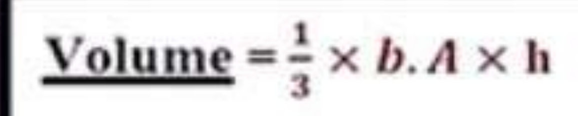
ⓐ 240 ● 260 ⓒ 300 ⓓ 360

$400 = \frac{1}{3} \times A.b \times 12$, Area base = 100 ,

side = 10 cm

Slant height = $\sqrt{5^2 + 12^2} = 13\ cm$

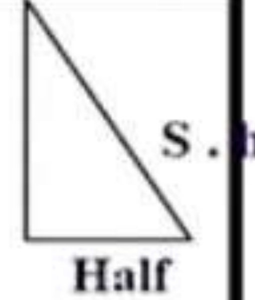
Lateral area = $\frac{1}{2} \times (10 \times 4) \times 13$



Side = $\sqrt{area}$

L . A = $\frac{1}{2}$ × p . of base × S . h

P . square = side × 4





61

Given : $\overrightarrow{F_1} = 3\hat{i} - 2\hat{j}$, $\overrightarrow{F_2} = a\hat{i} - \hat{j}$, $\overrightarrow{F_3} = 4\hat{i} - b\hat{j}$ and their resultant $\overrightarrow{R} = 6\hat{i} - 4\hat{j}$, then a + b = ...

(a) 2 (b) – 2 (c) zero (d) – 1

(6 , -4) = (3 + a + 4 , -2 + -1 + - b)

7 + a = 6 , a = -1

-3 –b = -4 , b = 1

$\overrightarrow{R} = \overrightarrow{F}_1 + \overrightarrow{F}_2 + \overrightarrow{F}_3$

62

Two forces are equal act at a point and the measure of the angle between them is $\frac{\pi}{3}$ and their resultant is 3 newton , then the magnitude of each is .... newton.

(a) $\sqrt{3}$ (b) 3 (c) $\frac{3}{2}$ (d) $3\sqrt{3}$

If two forces are equal

$(F_1 = F_2 = F)$, $R = 2f\cos\frac{\alpha}{2}$

63

If A , B and C are three points identify a plane , then ....

(a) AB = BC = CA (b) AB + BC = AC

(c) AB + BC > AC (d) AB + BC < AC

The sum of any two sides of triangle greater than the third

64

A force of magnitude $5\sqrt{3}$ newton act in direction 30° east of north , is resolved into two perpendicular components , then the magnitude of its component in direction the north =............

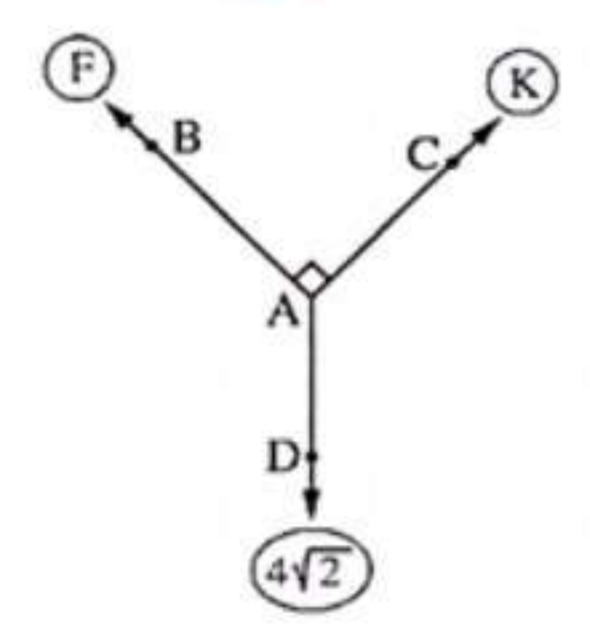
(a) 5 (b) 7.5 (c) $\frac{5\sqrt{3}}{2}$ (d) 15



65

In the opposite figure :

Three equilibrium forces of magnitudes F , k and $4\sqrt{2}$ newton , m (∠ BAC) = 90° , m (∠ BAD) = 135° , then (F , K) = ……….



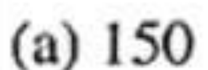

(a) (4 , 4)
(b) $\left(4, \sqrt{2}\right)$
(c) $\left(\sqrt{2}, 4\right)$
(d) (2 , 2)

66

In the opposite figure :

A body of weight 90 gm.wt. is attached to the end of a string of 30 cm. long. The body is pulled by a horizontal force. It comes to equilibrium when it is 24 cm. apart from the wall $\overline{AB}$ then T − F = ………. gm.wt.

A
30cm
T
B
24cm.
F
90


(a) 150
(b) 120
(c) 50

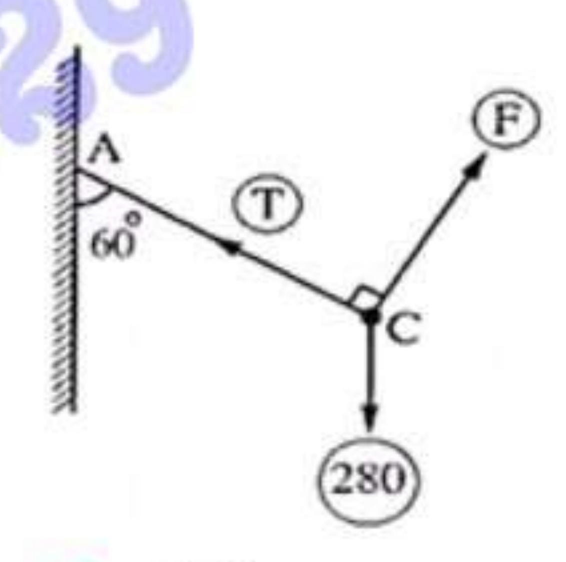
(d) 30

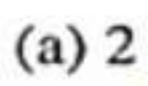
$$\frac{F}{24} = \frac{T}{30} = \frac{90}{18}$$

67

In the opposite figure :

A lamp of weight 280 gm.wt. is attached to the end of a string. It is in equilibrium under the effect of a force perpendicular to the string when it is inclined to the vertical by an angle of measure 60° , then $\frac{F}{T}$ = ……….

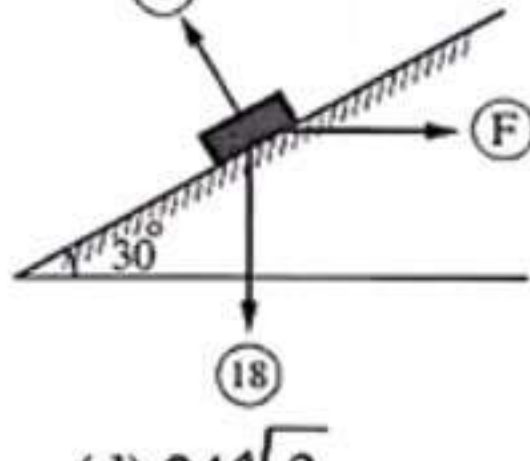


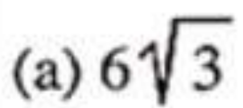

(a) 2
(b) $\frac{1}{2}$
(c) $\frac{1}{\sqrt{3}}$
(d) $\sqrt{3}$

68

In te opposite figure :

A body of weight 18 newton is placed on a smooth plane inclined to the horizontal at an angle of measure 30° , it is kept in equilibrium by a horizontal force of magnitude F newton , then F + r = ………. newton.




(a) $6\sqrt{3}$
(b) $12\sqrt{3}$
(c) $18\sqrt{3}$
(d) $24\sqrt{3}$



69

The weight of a body is 6 kg.wt. It is placed on a smooth inclined plane makes an angle 30° to the horizontal and kept in equilibrium by a horizontal force , then the magnitude of this horizontal force = ……… kg.wt ,

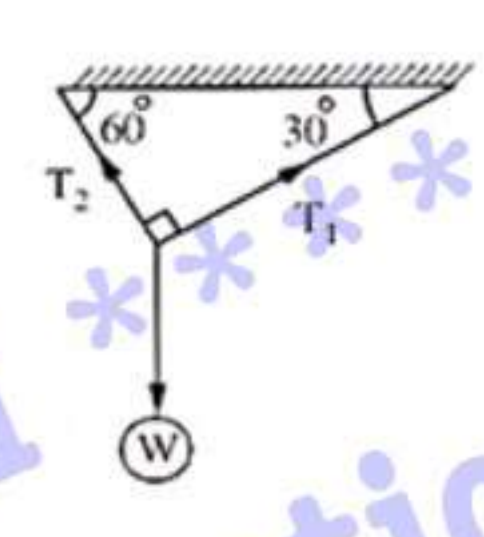
(a) $\sqrt{3}$ (b) $2\sqrt{3}$ (c) $4\sqrt{3}$ (d) 6

70

In the opposite figure :

A body of weight (W) is hanged by two strings.

The two strings inclined to the horizontal as shown in the figure , then T_1 = ……………



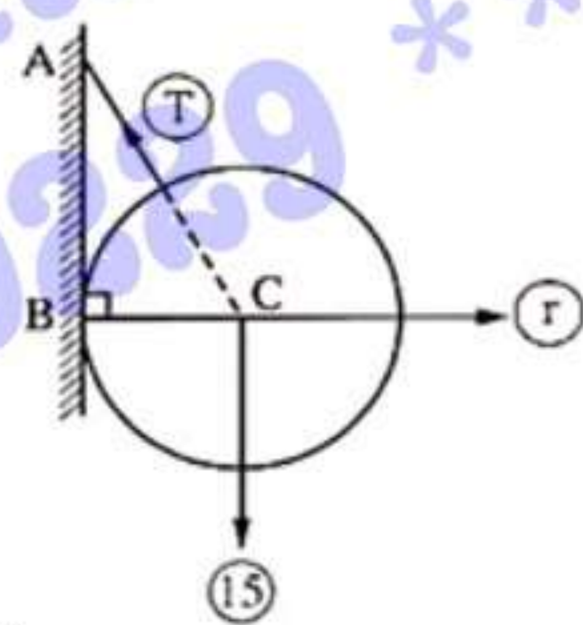
(a) $\frac{1}{3}$ W (b) $\frac{1}{2}$ W

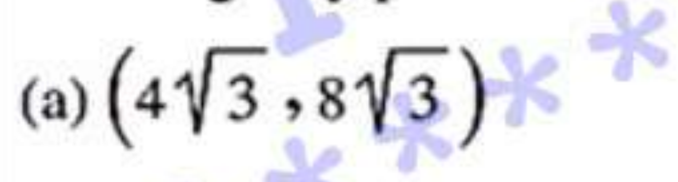
(c) $\frac{\sqrt{3}}{3}$ W (d) $\frac{\sqrt{3}}{2}$ W

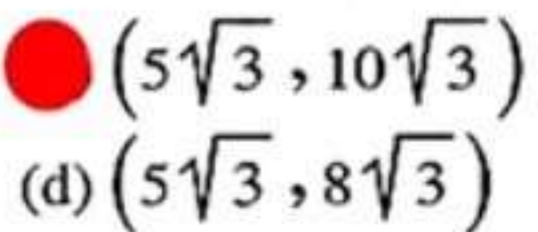
71

In the opposite figure :

A solid uniform sphere of weight 15 gm.wt. and radius length 10 cm. is in equilibrium by a string of length 10 cm. attached to a point of its surface and the other end of the string is fixed at a point in the vertical smooth plane above the tangency point , then (r , T) = ………



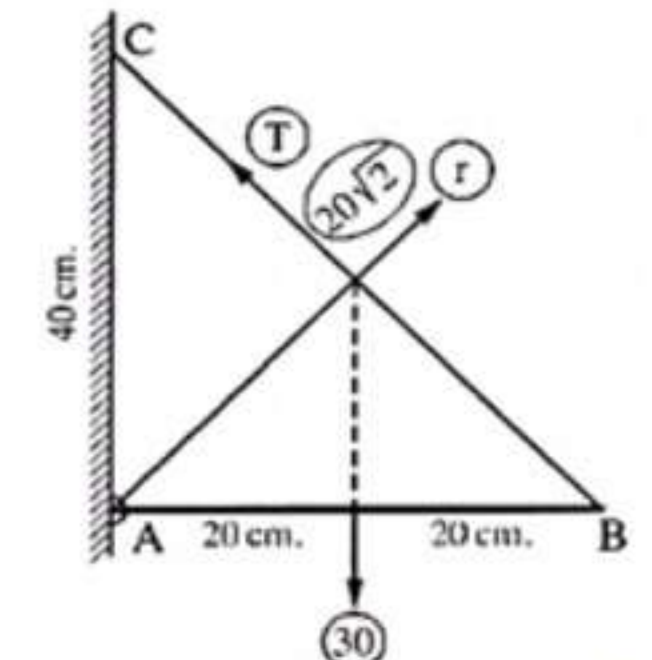

(a) $(4\sqrt{3}, 8\sqrt{3})$


(b) $(5\sqrt{3}, 10\sqrt{3})$

(c) (5 , 10) (d) $(5\sqrt{3}, 8\sqrt{3})$

72 In the opposite figure :

$\overline{AB}$ is a uniform rod with length 40 cm. and weight 30 newton is connected to a hinge at A. If the rod kept in equilibrium horizontally by a light string connected to the rod at B and C where C is located on the wall just above A , AC = 40 cm.



First : The reaction of the hinge r = ... newton.

(a) 30 (b) 20
(c) $40\sqrt{2}$ (d) $15\sqrt{2}$

Second : The tension of the string T = ... newton.

(a) $15\sqrt{2}$ (b) 30 (c) 20 (d) $40\sqrt{2}$

73 The circumference of the circle whose equation $x^2 + y^2 + 2x - 2y - 2 = 0$ is .... length unit.

(a) π (b) 2π (c) 4π (d) 8π

74 A right quadrilateral pyramid of height 10 cm. , its base is a rhombus whose diagonal lengths are 12 cm. and 8 cm. , then its volume = ... cm^3

(a) 40 (b) 80 (c) 160 (d) 200

volume = $\frac{1}{3}$ × Area base × h = $\frac{1}{3}$ × ($\frac{1}{2}$ × 12 × 8) × 10 h = 160

75 The center of the circle whose equation $(x-2)^2 + (y+3)^2 = 16$ is ....

(a) (2 , 3) (b) (2 , – 3) (c) (13 , 16) (d) (4 , 9)

76 The equation of the circle which is the image of the circle $x^2 + y^2 - 12x + 6y + 20 = 0$ by translation $(x + 2 , y - 2)$ is ....

(a) $(x+8)^2 + (y+5)^2 = 25$ (b) $(x-8)^2 + (y+5)^2 = 25$
(c) $(x-8)^2 + (y-5)^2 = 25$ (d) $(x+5)^2 + (y-8)^2 = 25$

Good luck



كيفية طباعة صفحات معينة من ملف معين



مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9

خطوة 1

خطوة 2
اختيار اسم الطابعة بتاعتك

خطوة 3
كتابة الصفحات المراد طباعتها
نكتب رقم 4 ثم نكتب الشرطة دي – ثم نكتب 9

خطوة 4
اختيار نوع الورق

خطوة 5
اختيار A4

خطوة 6

المراجعة رقم (2)







1 Two forces of magnitudes 4 F , 5 F newton , their resultant 9 F newton , then the measure of the angle included between them = ...

(a) 0° (b) 90° (c) 180° (d) 120°

2 Two perpendicular forces of magnitudes F , 12 newton , their resultant 13 newton , then F = ... N

(a) 5 (b) 12 (c) 1 (d) zero

3 Two forces of magnitudes F , F newton , their resultant F newton , then the measure of the angle included between them = ...

(a) 90° (b) 120° (c) 180° (d) zero°

4 Two forces of magnitude F , 6 newton , then their resultant perpendicular to the first force , the measure of the angle included between them 120° , then F = ...

(a) 3 (b) 6 (c) $6\sqrt{2}$ (d) 12

5 Two forces of magnitude 3 , 5 newton , then their resultant ∈ ....

(a) [3 , 5] (b)]3 , 5[(c) [2 , 8] (d)]2 , 8[

6 Two forces of magnitude 3 , 5 newton , then their resultant ∈ ....

(a) [3 , 5] (b)]3 , 5[(c) [2 , 8] (d)]2 , 8[

7 Two forces of magnitudes 4 , 5 newton and the cosine of their included angle is $\frac{-2}{5}$, then the magnitude of their resultant = ... newton.

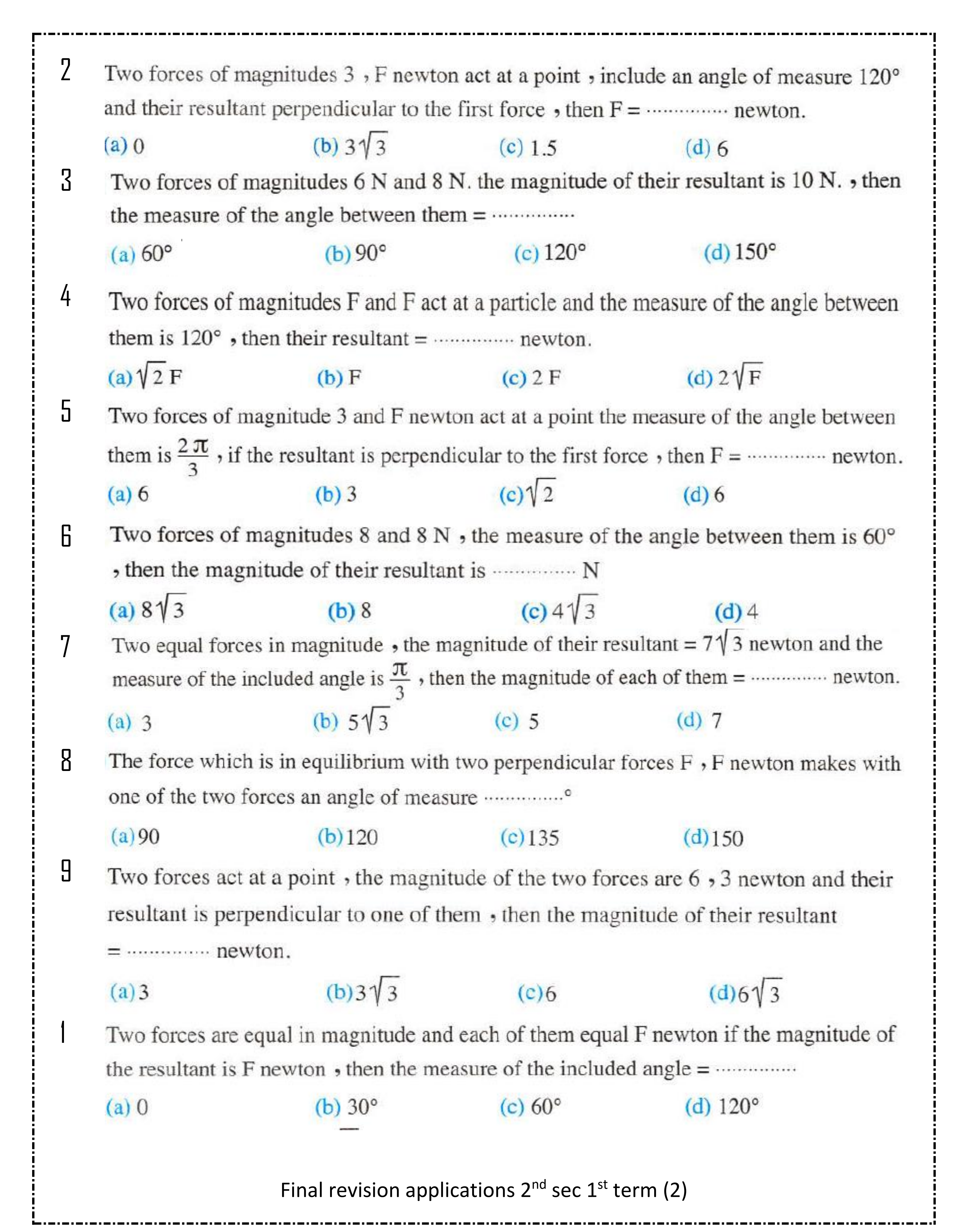
(a) 15 (b) 9 (c) 5 (d) 13

8 Two forces act at a point of magnitudes 2 F , 3 F newton and the magnitude of their resultant 5 F newton , then the measure of their included angle = ...

(a) 0° (b) 60° (c) 120° (d) 180°

1 Two forces act at a point their magnitudes are 7 , F newton and their resultant bisects the angle between them , then F = ... newton.

(a) 49 (b) 14 (c) 7 (d) $7\sqrt{2}$



2 Two forces of magnitudes 3 , F newton act at a point , include an angle of measure 120° and their resultant perpendicular to the first force , then F = ... newton.

(a) 0 (b) $3\sqrt{3}$ (c) 1.5 (d) 6

3 Two forces of magnitudes 6 N and 8 N. the magnitude of their resultant is 10 N. , then the measure of the angle between them = ...

(a) 60° (b) 90° (c) 120° (d) 150°

4 Two forces of magnitudes F and F act at a particle and the measure of the angle between them is 120° , then their resultant = ... newton.

(a) $\sqrt{2}$ F (b) F (c) 2 F (d) $2\sqrt{F}$

5 Two forces of magnitude 3 and F newton act at a point the measure of the angle between them is $\frac{2\pi}{3}$, if the resultant is perpendicular to the first force , then F = ... newton.

(a) 6 (b) 3 (c) $\sqrt{2}$ (d) 6

6 Two forces of magnitudes 8 and 8 N , the measure of the angle between them is 60° , then the magnitude of their resultant is .... N

(a) $8\sqrt{3}$ (b) 8 (c) $4\sqrt{3}$ (d) 4

7 Two equal forces in magnitude , the magnitude of their resultant = $7\sqrt{3}$ newton and the measure of the included angle is $\frac{\pi}{3}$, then the magnitude of each of them = ... newton.

(a) 3 (b) $5\sqrt{3}$ (c) 5 (d) 7

8 The force which is in equilibrium with two perpendicular forces F , F newton makes with one of the two forces an angle of measure ....°

(a) 90 (b) 120 (c) 135 (d) 150

9 Two forces act at a point , the magnitude of the two forces are 6 , 3 newton and their resultant is perpendicular to one of them , then the magnitude of their resultant = ... newton.

(a) 3 (b) $3\sqrt{3}$ (c) 6 (d) $6\sqrt{3}$

1 Two forces are equal in magnitude and each of them equal F newton if the magnitude of the resultant is F newton , then the measure of the included angle = ...

(a) 0 (b) 30° (c) 60° (d) 120°

2 A body of weight W is placed on a smooth inclined plane with the horizontal by an angle of measure θ , then its component in the direction of the line of greatest slope ....

(a) $W \sin \theta$ (b) $W \cos \theta$ (c) $W \tan \theta$ (d) $W \cot \theta$

3 A force of magnitude 12 newtons acts in direction 30° North of the East , then its component in the East direction = ... newton.

(a) 6 (b) $6\sqrt{3}$ (c) 12 (d) 24

4 A force of magnitude 12 newton , acts in the direction of 30° north of west and is resolved into two perpendicualr directions , then the magnitude of its component in the west direction = ... newton.

(a) 6 (b) 12 (c) $12\sqrt{3}$ (d) $6\sqrt{3}$

5 **In the opposite figure :**

The force R is resolved into two components F_1 , F_2 , then : $\frac{F_1}{F_2}$ = ...

(a) $\sin(\theta_1 + \theta_2)$ (b) $\frac{\sin \theta_2}{\sin \theta_1}$

(c) $\frac{\sin \theta_1}{\sin \theta_2}$ (d) $\sin \frac{\theta_1}{\theta_2}$

F2
R
θ2
θ1
F1
D C

6 A force of magnitude 150 newton acts in the direction 30° North of the west is resolved into two perpendicular components , then the magnitude of the component in North direction = ... newton.

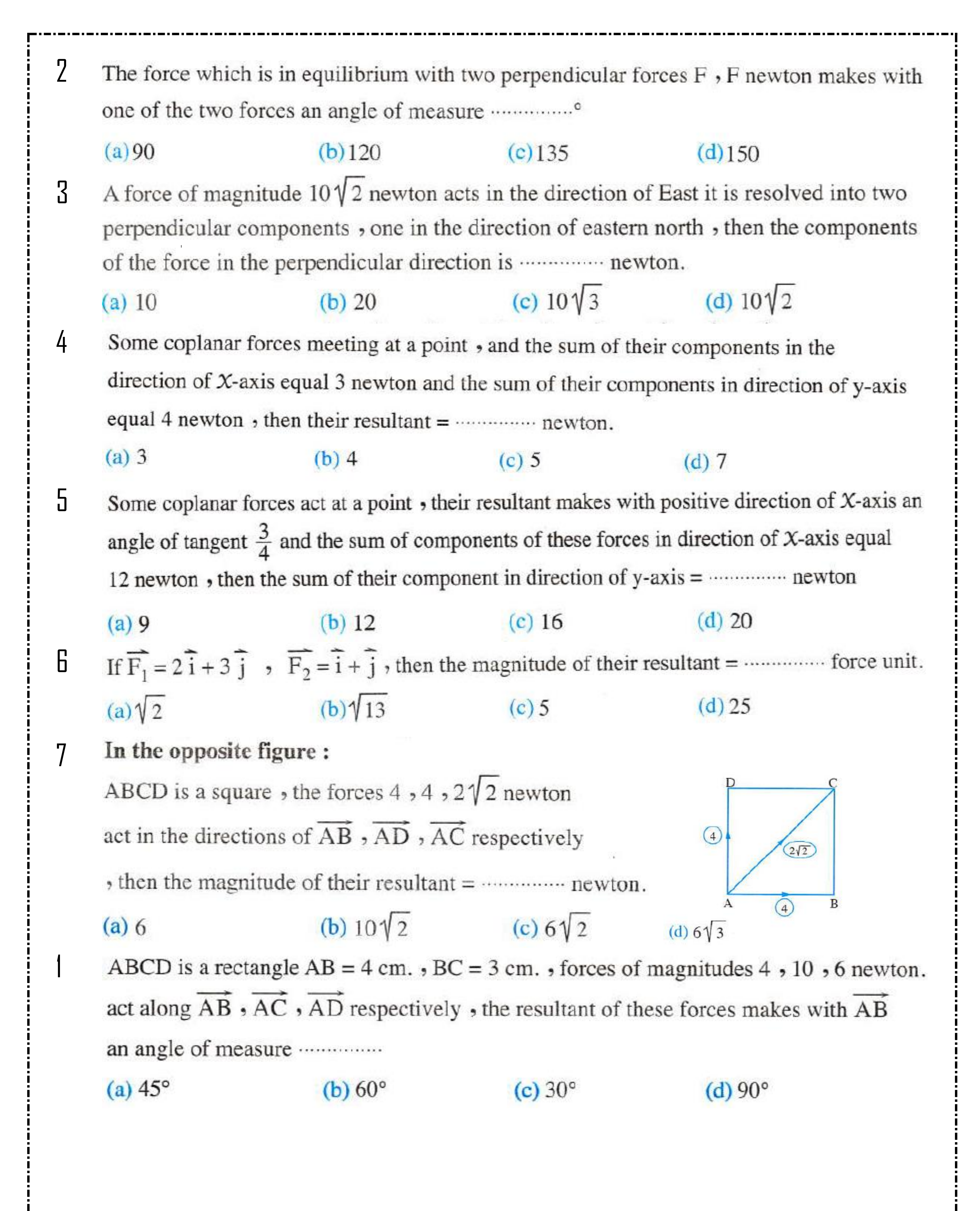
(a) 30 (b) 75 (c) $75\sqrt{3}$ (d) 150

1 **In the opposite figure :**

If the force of magnitude 100 newton is resolved into two forces $\overrightarrow{F_1}$ and $\overrightarrow{F_2}$ and the force is measured by newton , then (F_1 , F_2) = ...

F2
100
60°
F1

(a) $(50 , 50\sqrt{3})$ (b) $(50\sqrt{3} , 10)$ (c) $(50 , 50)$ (d) $(10 , 10)$



2 The force which is in equilibrium with two perpendicular forces F , F newton makes with one of the two forces an angle of measure ....°

(a) 90 (b) 120 (c) 135 (d) 150

3 A force of magnitude $10\sqrt{2}$ newton acts in the direction of East it is resolved into two perpendicular components , one in the direction of eastern north , then the components of the force in the perpendicular direction is .... newton.

(a) 10 (b) 20 (c) $10\sqrt{3}$ (d) $10\sqrt{2}$

4 Some coplanar forces meeting at a point , and the sum of their components in the direction of X-axis equal 3 newton and the sum of their components in direction of y-axis equal 4 newton , then their resultant = ... newton.

(a) 3 (b) 4 (c) 5 (d) 7

5 Some coplanar forces act at a point , their resultant makes with positive direction of X-axis an angle of tangent $\frac{3}{4}$ and the sum of components of these forces in direction of X-axis equal 12 newton , then the sum of their component in direction of y-axis = ... newton

(a) 9 (b) 12 (c) 16 (d) 20

6 If $\overrightarrow{F_1} = 2\,\overrightarrow{i} + 3\,\overrightarrow{j}$, $\overrightarrow{F_2} = \overrightarrow{i} + \overrightarrow{j}$, then the magnitude of their resultant = ... force unit.

(a) $\sqrt{2}$ (b) $\sqrt{13}$ (c) 5 (d) 25

7 **In the opposite figure :**

ABCD is a square , the forces 4 , 4 , $2\sqrt{2}$ newton act in the directions of $\overrightarrow{AB}$, $\overrightarrow{AD}$, $\overrightarrow{AC}$ respectively , then the magnitude of their resultant = ... newton.

(a) 6 (b) $10\sqrt{2}$ (c) $6\sqrt{2}$ (d) $6\sqrt{3}$

1 ABCD is a rectangle AB = 4 cm. , BC = 3 cm. , forces of magnitudes 4 , 10 , 6 newton. act along $\overrightarrow{AB}$, $\overrightarrow{AC}$, $\overrightarrow{AD}$ respectively , the resultant of these forces makes with $\overrightarrow{AB}$ an angle of measure ....

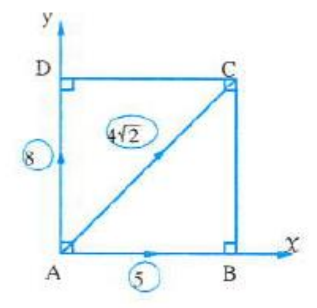
(a) 45° (b) 60° (c) 30° (d) 90°

2 Which of the following sets of forces could not be in equilibrium ?

(a) 11 , 7 , 5 newton. (b) 4 , 6 , 8 newton.

(c) 10 , 10 , 8 newton. (d) 8 , 4 , 14 newton.

3 **In the opposite figure :**



ABCD is a square , the forces of magnitudes 5 , 8 , $4\sqrt{2}$ newton act on $\overrightarrow{AB}$, $\overrightarrow{AD}$ and $\overrightarrow{AC}$ respectively , then the polar form of the resultant is ....

(a) (5 , 54°) (b) (15 , 60°)

(c) (15 , 53° 8̀) (d) (13 , 90°)

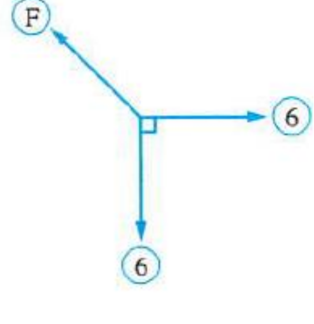
4 If $\overrightarrow{F_1} = \overrightarrow{i} - \overrightarrow{j}$, $\overrightarrow{F_2} = 2\overrightarrow{i} - 4\overrightarrow{j}$, $\overrightarrow{R} = 2a\overrightarrow{i} - 3b\overrightarrow{j}$, then a + b = ...

(a) 3 (b) $3\frac{1}{3}$ (c) $3\frac{1}{6}$ (d) 12

5 Two equilibrium forces , $\overrightarrow{F_1} = (4 , a)$ and $\overrightarrow{F_2} = (b , -5)$, then a + b = ...

(a) 1 (b) – 1 (c) 9 (d) – 9

6 **In the opposite figure :**



the forces are in equilibrium

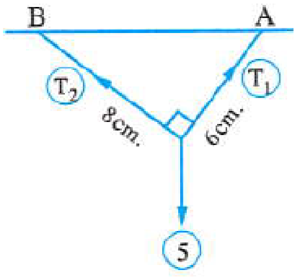
, then F = ...

(a) 6 (b) $6\sqrt{2}$

(c) $5\sqrt{2}$ (d) 12



1 **In the opposite figure :**



$T_1 \times T_2 =$ ....

(a) 6

(b) $6\sqrt{2}$

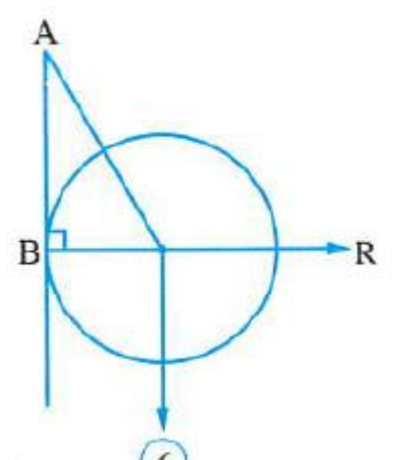
(c) $3\sqrt{2}$

(d) 12

A

2

A sphere of weight 6 N attached by a string of length equal the radius length of the sphere , then the reaction of the wall = ... N



(a) $2\sqrt{3}$ (b) 6

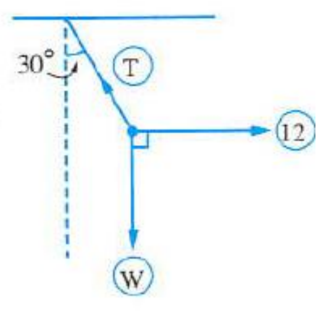
(c) $6\sqrt{3}$ (d) 12

3 A body of weight 12 newton is placed on an inclined plane with the horizonal by an angle of measure 30° , if the body kept in equilibrium under the action of a horizontal force. Find the magnitude of this force and the normal reaction of the plane.

4

In the opposite figure :

A body is suspended by the end of a string and its other end fixed at the ceiling of a room. A horizontal force of magnitude 12 gm.wt. pulled the body until the string inclines to the vertical by an angle of measure 30° , then the weight of the body = ... gm.wt.



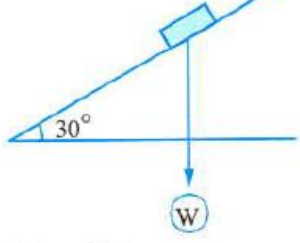
(a) $12\sqrt{3}$ (b) $3\sqrt{12}$ (c) 12 (d) 15

5 If a body is in equilibrium under the action of three coplanar forces , meeting at a point and their magnitudes are 7 , 8 , 5 newton , then the measure of the angle between the second and the third forces = ...

(a) 150° (b) 120° (c) 90° (d) 60°

1 **In the opposite figure :**

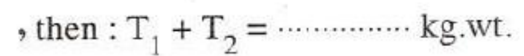
A body of weight (W) is placed on a smooth inclined plane inclines to the horizontal by an angle of measure 30° , then the component of its weight along the greatest slope of the plane is ....



(a) W (b) W sin 30° (c) W cos 30° (d) W tan 30°

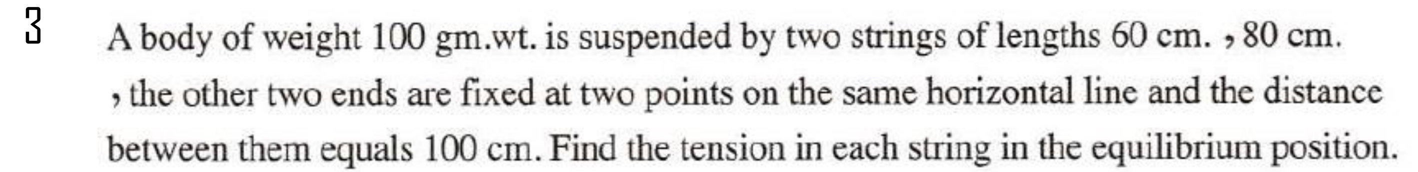
2 **In the opposite figure :**

A body of weight 36 kg.wt. is suspended by two strings incline to the vertical by angles of measures 30° , 60°


, then : $T_1 + T_2 =$ .... kg.wt.

(a) 45 (b) $9 + 18\sqrt{3}$

(c) $36 + 18\sqrt{3}$ (d) $18\left(1+\sqrt{3}\right)$

3 
A body of weight 100 gm.wt. is suspended by two strings of lengths 60 cm. , 80 cm. , the other two ends are fixed at two points on the same horizontal line and the distance between them equals 100 cm. Find the tension in each string in the equilibrium position.

4 The difference between the greatest and smallest values of the resultant of two forces of magnitudes 5 and 8 newton = ...

(a) 5 (b) 8 (c) 10 (d) 13

5 If the forces $\overrightarrow{F_1} = a\,\overrightarrow{i} - 6\,\overrightarrow{j}$, $\overrightarrow{F_2} = -3\,\overrightarrow{i} + 4\,\overrightarrow{j}$, $\overrightarrow{F_3} = 9\,\overrightarrow{i} + 2\,\overrightarrow{j}$ are equilibrium , then a = ...

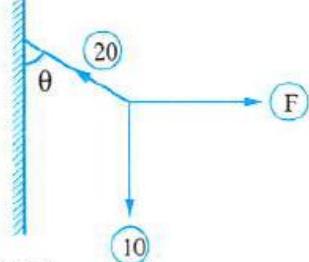
(a) 6 (b) – 6 (c) 1 (d) 15

6 A body of weigth 6 newton is placed on a smooth plane inclined to the horizontal at an angle of measure 30° , it is kept in equilibrium by a horizontal force , then the magnitude of the reaction of the plane = ... N.

(a) $2\sqrt{3}$ (b) $3\sqrt{3}$ (c) $4\sqrt{3}$ (d) $8\sqrt{3}$

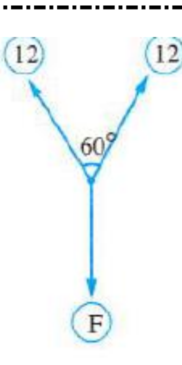
1 **In the opposite figure :**

A body of weight 10 N , is suspended by a string which inclines to the vertical by an angle of measure θ , it is in equilibrium under the effect of a horizontal force F , then θ = ...



(a) 30° (b) 45° (c) 60° (d) 75°

2 **In the opposite figure :**



The system is in equilibrium

, then F = ... newton.

(a) $12\sqrt{2}$ (b) $12\sqrt{3}$

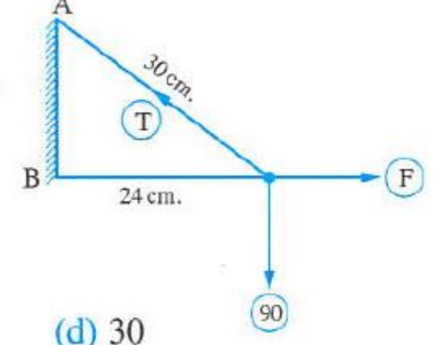
(c) 6 (d) 12

3 A uniform sphere of weight 24 newton and its radius length 6 cm. If it is in equilibrium by a string of length 4 cm. attached to a point of its surface and the other end of the string is fixed at a point in the vertical smooth wall. Find the tension of the string and the reaction of the wall.

4 Three coplanar forces $\overrightarrow{F_1} = 6\,\overline{i} + 7\,\overline{j}$, $\overrightarrow{F_2} = a\,\overline{i} - 9\,\overline{j}$, $\overrightarrow{F_3} = 5\,\overline{i} + b\,\overline{j}$ act at a particle and they are in equilibrium , then a + 2 b = ...

(a) − 9 (b) 5 (c) 7 (d) − 7

5 **In the opposite figure :**

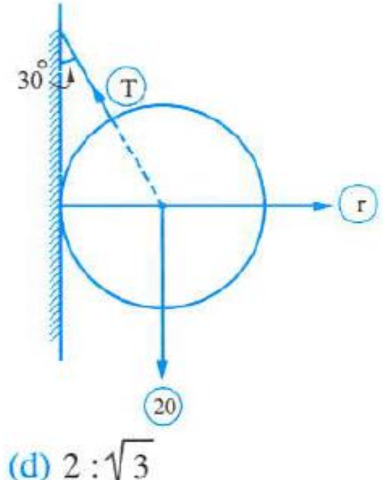


A body of weight 90 gm.wt. is attached to the end of a string of 30 cm. long the body is pulled by a horizontal force. It comes to equilibrium when it is 24 cm. apart from wall $\overline{AB}$, then T − F = ... gm.wt.



(a) 150 (b) 120 (c) 50 (d) 30

1 **In the opposite figure :**



A smooth sphere of weight 20 newton rests against a smooth vertical wall. It suspended at a point on its surface by means of a string and the other end is fixed to the wall at a point lies directly above the point of tangency of the sphere and the wall , if the string makes with the vertical an angle of measure 30° , then in case of equilibrium T : r = ...



(a) 2 : 1 (b) 1 : 2 (c) $\sqrt{3} : 1$ (d) $2 : \sqrt{3}$

2 A smooth sphere of weight 15 newton is on a smooth vertical wall and suspended by a light string from a point on its surface. The other end of the string is attached to a point on the wall above the point of contact between the wall and the sphere. If the length of the string equals the radius length of the sphere. Find the pressure on the wall and the tension in the string in case of equilibrium.

3 **In the opposite figure :**

A body of weight 18 newton is placed on a smooth inclined plane to the horizontal at an angle of measure 30° is in equilibrium under the effect of a horizontal force $\vec{F}$

Find : the value of each of F , r

r
F
30°
18

4 The weight of a body is 200 gm.wt. It is tied by two perpendicular strings their lengths are 60 cm. , 80 cm. and the other ends are fixed on the same horizontal line , find the difference between the tensions in the two strings.

5 The forces of magnitudes F , 6 , $4\sqrt{2}$, $5\sqrt{2}$ and K measured in newton are act at a point in the directions east , north , north west , west south and south respectively. Find the values of F and K if the resultant of forces = 2 newton act in north direction.

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6 ABCDHE is a regular hexagon. Forces of magnitudes 2 , $4\sqrt{3}$, 8 , $2\sqrt{3}$ and 4 kg.wt. act at point A in directions $\overrightarrow{AB}$, $\overrightarrow{AC}$, $\overrightarrow{AD}$, $\overrightarrow{AH}$, $\overrightarrow{AE}$ respectively. Find the magnitude and the direction of their resultant.

1 The two skew lines are ....

(a) not intersecting. (b) not parallel.

(c) not lie on one plane. (d) all the previous.

2 The least number of non-collinear points that determine a plane ....

(a) one. (b) two. (c) three. (d) four.

3 The least number of non-collinear points that determine a plane ....

(a) one. (b) two. (c) three. (d) four.

4 The least number of non-collinear points that determine a plane ....

(a) one. (b) two. (c) three. (d) four.

5 The base of the quadrilateral regular pyramid is a ....

(a) triangle. (b) square. (c) rectangle. (d) rhombus.

6 In the regular pyramid : the heigth .... the slant height.

(a) $<$ (b) $>$ (c) $\leq$ (d) $\geq$

7 The least number of planes that determine a solid is ....

(a) 2 (b) 3 (c) 4 (d) 5

8 The two straight lines are skew if they are ....

(a) Not contained in one plane (b) Not parallel

(c) Not perpendicular (d) Not intersecting

9 The least number of planes that determine a solid is ....

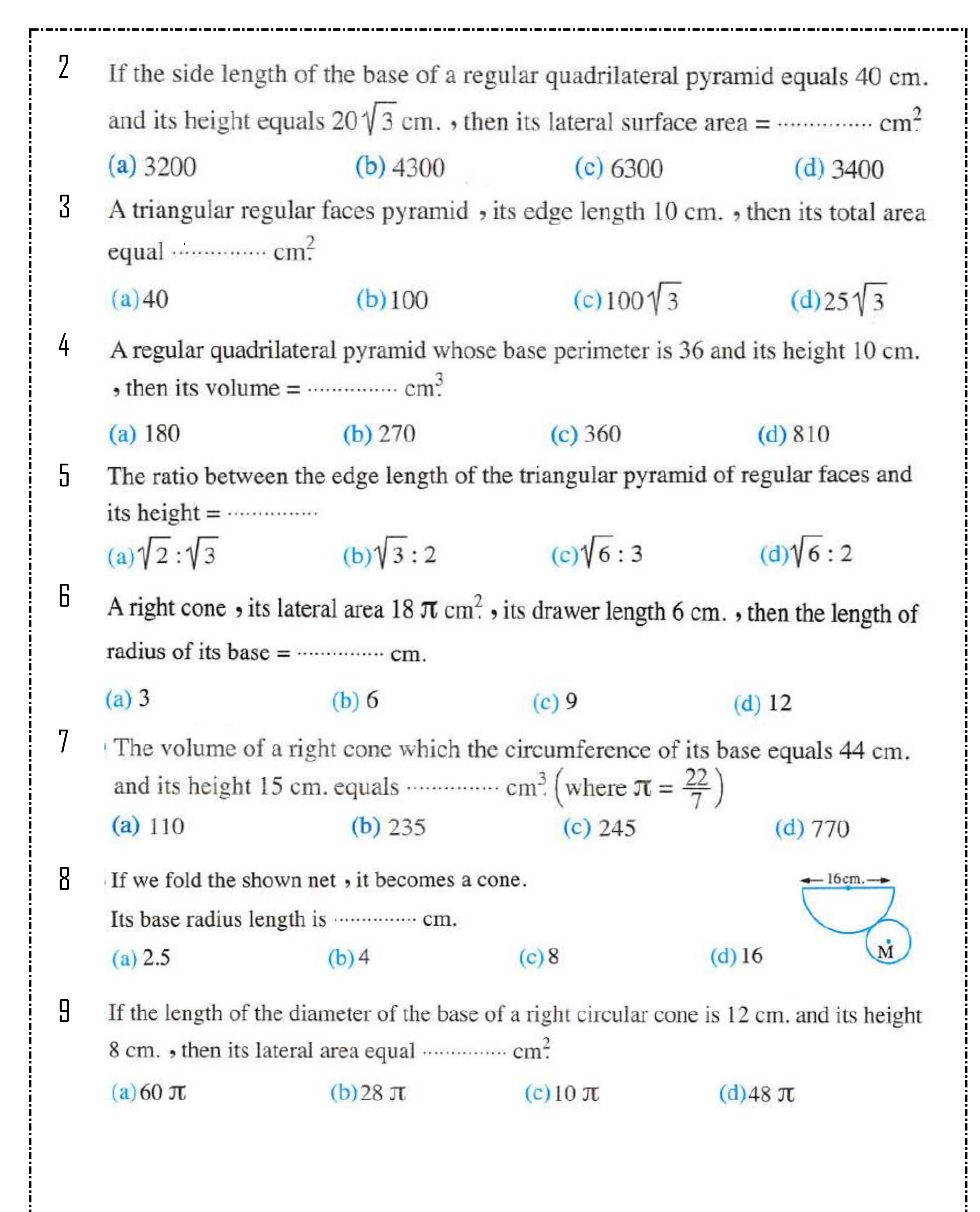
(a) 2 (b) 3 (c) 4 (d) 5

10 Number of planes that are passing through two different parallel straight lines = ...

(a) 1 (b) 2 (c) 3 (d) an infinite number.

1 A triangular pyramid of reqular faces , its edge length 6 cm. , then its volume = ... cm^3.

(a) 36 (b) 216 (c) $216\sqrt{2}$ (d) $18\sqrt{2}$



2 If the side length of the base of a regular quadrilateral pyramid equals 40 cm. and its height equals $20\sqrt{3}$ cm. , then its lateral surface area = ... cm^2

(a) 3200 (b) 4300 (c) 6300 (d) 3400

3 A triangular regular faces pyramid , its edge length 10 cm. , then its total area equal .... cm^2

(a) 40 (b) 100 (c) $100\sqrt{3}$ (d) $25\sqrt{3}$

4 A regular quadrilateral pyramid whose base perimeter is 36 and its height 10 cm. , then its volume = ... cm^3

(a) 180 (b) 270 (c) 360 (d) 810

5 The ratio between the edge length of the triangular pyramid of regular faces and its height = ...

(a) $\sqrt{2} : \sqrt{3}$ (b) $\sqrt{3} : 2$ (c) $\sqrt{6} : 3$ (d) $\sqrt{6} : 2$

6 A right cone , its lateral area 18π cm^2 , its drawer length 6 cm. , then the length of radius of its base = ... cm.

(a) 3 (b) 6 (c) 9 (d) 12

7 The volume of a right cone which the circumference of its base equals 44 cm. and its height 15 cm. equals .... cm^3 $\left(\text{where } \pi = \frac{22}{7}\right)$

(a) 110 (b) 235 (c) 245 (d) 770

8 If we fold the shown net , it becomes a cone.

Its base radius length is .... cm.

(a) 2.5 (b) 4 (c) 8 (d) 16

9 If the length of the diameter of the base of a right circular cone is 12 cm. and its height 8 cm. , then its lateral area equal .... cm^2

(a) 60π (b) 28π (c) 10π (d) 48π

1 If the equation of a circle $x^2 + y^2 = 36$, then its area = ... cm^2

(a) 36 (b) 6π (c) 12π (d) 36π

2 If the equation of a circle is $x^2 + y^2 + 4x - 6y - 10 = 0$, then its centre is ....

(a) (4 , – 6) (b) (2 , – 3) (c) (– 2 , 3) (d) (– 4 , 6)

3 The circumference of the circle whose equation : $(x - 3)^2 + (y + 5)^2 = 25$ is .... length units.

(a) 2π (b) 3π (c) 10π (d) 25π

4 The length of diameter of the circle whose equation is : $4x^2 + 4y^2 + 16x - 8y - 16 = 0$ equals .... length unit.

(a) 3 (b) 6 (c) 12 (d) 24

5 If the radius length of the base of a right circular cone = 6 cm. , and its height = 8 cm. , then its lateral surface area = ... cm^2

(a) 60π (b) 48π (c) 69π (d) 96π

6 If the length of the diameter of the base of a right circular cone is 12 cm. and its height 8 cm. , then its lateral area equal .... cm^2

(a) 60π (b) 28π (c) 10π (d) 48π

7 The area of the circle whose equation is : $(x - 5)^2 + (y + 4)^2 = 7$ equals .... square unit.

(a) 3.5π (b) 7π (c) 12.25π (d) 49π

8 The equation of the circle whose centre (4 , 3) and touches x-axis is ....

(a) $(x - 3)^2 + (y - 4)^2 = 16$ (b) $(x - 4)^2 + (y - 3)^2 = 9$

(c) $(x + 3)^2 + (y + 4)^2 = 9$ (d) $(x + 3)^2 + (y - 4)^2 = 16$

1 Form the general equation of the circle in which $\overline{AB}$ is diameter of it where : A (6 , – 4) , B (0 , 2)

2 A regular quadrilateral pyramid , the perimeter of its base = 40 cm. and its height 13 cm. find its volume.

3 Find the equation of the circle whose centre is (7 , – 5) and passes through the point (3 , – 2)

4 A regular quadrilateral pyramid whose base area is 9 cm^2 and the length of its lateral edge is 5 cm. Find its volume.

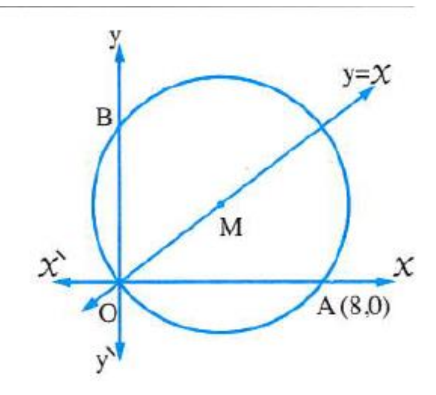
5 Write the general form of the equation of the circle whose center is (– 2 , 3) and the length of its diameter is 18 length units.

6 Determine the position of the circle $C_1 : (x - 5)^2 + (y + 2)^2 = 4$ with respect to the circle $C_2 : (x + 7)^2 + (y - 3)^2 = 1$

7 **In the opposite figure :**

A circle its center M $\in$ the straight line $y = x$

Find the equation of the circle.



8 **Find the equation of the circle which the straight line :** $3x + 4y + 23 = 0$ touches it and its centre is (1 , 1).

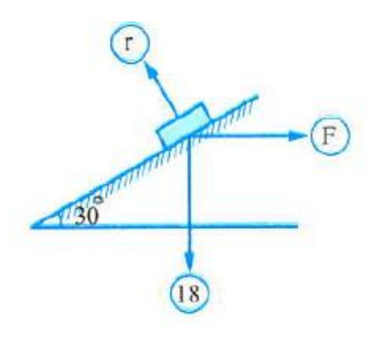
9 A regular quadrilateral pyramid , the side length of its base is 18 cm. , if its volume is 1296 cm^3. Find the slant height and lateral surface area.

10 A regular quadrilateral pyramid the length of its base is 20 cm. , and its height is $10\sqrt{3}$ cm.
Find : Its lateral surface area

1 **In the opposite figure :**

A body of weight 18 newton is placed on a smooth inclined plane to the horizontal at an angle of measure 30° is in equilibrium under the effect of a horizontal force $\vec{F}$

Find : the value of each of F , r



2 The weight of a body is 200 gm.wt. It is tied by two perpendicular strings their lengths are 60 cm. , 80 cm. and the other ends are fixed on the same horizontal line , find the difference between the tensions in the two strings.

3 The forces of magnitudes F , 6 , $4\sqrt{2}$, $5\sqrt{2}$ and K measured in newton are act at a point in the directions east , north , north west , west south and south respectively. Find the values of F and K if the resultant of forces = 2 newton act in north direction.

4 ABCDHE is a regular hexagon. Forces of magnitudes 2 , $4\sqrt{3}$, 8 , $2\sqrt{3}$ and 4 kg.wt. act at point A in directions $\overrightarrow{AB}$, $\overrightarrow{AC}$, $\overrightarrow{AD}$, $\overrightarrow{AH}$, $\overrightarrow{AE}$ respectively. Find the magnitude and the direction of their resultant.

5 A metal sphere of weight 400 kg.wt acts in its centre , placed between two smooth planes , one of them is vertical and the other inclined at angle of measure 60° with vertical , then find the reaction of each plane.

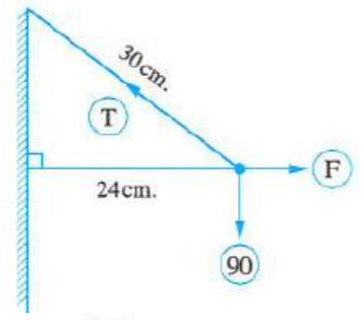
6 A body of weight 20 kg.wt. is placed on a smooth plane inclined to the horzional with an angle of measure θ where $\cos\theta = \frac{4}{5}$ the body of kept in equilibrium by a horizontal force of magnitude F. **Find :** F and the reaction of the plane.

7 **In the oppostie figure :**

T – F = ... gm.wt.

(a) 150 (b) 30

(c) 50 (d) 120



8 ABCDEF is a regular hexagon , the forces of magnitudes 6 , $2\sqrt{3}$, 6 , $2\sqrt{3}$ newton act on $\overrightarrow{AB}$, $\overrightarrow{AC}$, $\overrightarrow{AD}$ and $\overrightarrow{AE}$ respectively. Find the magnitude of the resultant of these forces.

1 The case that doesn't determine a plane is ....

(a) two intersecting straight lines. (b) two different parallel straight lines.

(c) three points not collinear. (d) straight line and point on it.

2 Two forces of magnitudes 8 , F newton , the angle between them $\theta \in]0 , \pi[$ their resultant bisects the angle between them , then F = ... newton.

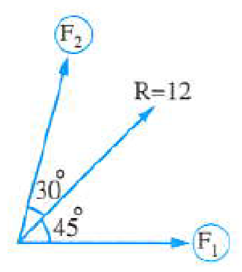
3 If the circle whose equation : $x^2 + y^2 - 6x + 8y + c = 0$ touches x-axis , then c = ...

4 If θ is the measure of the angle between two forces of magnitudes 2 N , 6 N and R is the resultant between them by newton where $4 \le R < 8$, then angle between them ∈ ....

5 **In the opposite figure :**

R = 12 newton

, then F_1 = ... newton.



(a) 12 cos 45° (b) 12 sin 45°

(c) 6 csc 45° (d) 6 csc 75°

6 Two forces of magnitudes 12 N , 15 N acting at a point and angle between them θ° where $\cos \theta° = \frac{-4}{5}$, then the angle between resultant and first force = ...

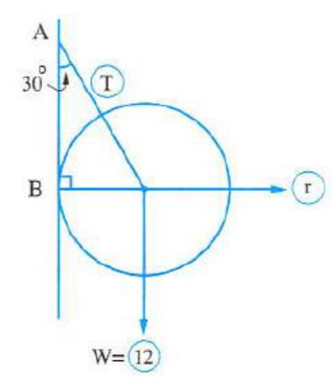
7 If $\overrightarrow{F_1}$, $\overrightarrow{F_2}$, $\overrightarrow{F_3}$ are three forces intersect at a point and equilibrium where $\overrightarrow{F_1} = (2 , -5)$, $\overrightarrow{F_2} = (-3 , 2)$, then $\overrightarrow{F_3}$ = ...

8 If $\overrightarrow{F_1} = 3\hat{i} - 2\hat{j}$, $\overrightarrow{F_2} = a\hat{i} - \hat{j}$, $\overrightarrow{F_3} = 4\hat{i} - b\hat{j}$, and the resultant $\overrightarrow{R} = 6\hat{i} - 4\hat{j}$, then (a , b) = ...

9 **In the opposite figure :**

If the sphere is in equilibrium

, then (T , r) = ... newton.



(a) (4 , 8) (b) (12 , 8)

(c) $\left(4\sqrt{3} , 8\sqrt{3}\right)$ (d) $\left(8\sqrt{3} , 4\sqrt{3}\right)$

W=12

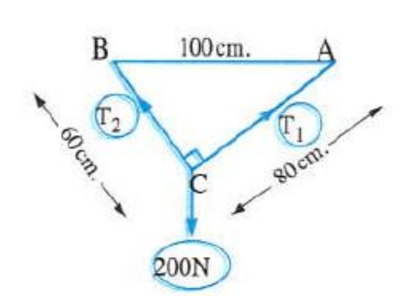
10 The volume of triangular regular faces pyramid its edge length 6 cm. = ... cm^3

11 A right circular cone the length of its drawer 25 cm. and its lateral area 550 cm^2, then its volume = ... cm^3 $\left(\pi = \frac{22}{7}\right)$

(a) 1223 (b) 1232 (c) 1322 (d) 3122

12 **In the opposite figure :**

A body its weight 200 N is hanged by two strings, then the magnitude of the tension in the two strings = ... N



13 If the length of the radius of right circular cone 3 cm. and its height 4 cm., then its total area = ... cm^2

14 Three coplanar forces of magnitude 5 , 6 , 7 newton act at a particle if the forces are in equilibrium , then the cosine of the angle between the second and the third force = ...

15 The point that lies on the circle : $(x+2)^2 + y^2 = 13$ from the following is ....

16 Any four points don't lie in one plane determine ....

(a) one plane. (b) two planes. (c) three planes. (d) four planes.

17 Three coplanar forces not on the same straight line meeting at a point are in Equilibrium the magnitudes of them are 4 , 8 , F , then F could be .... N

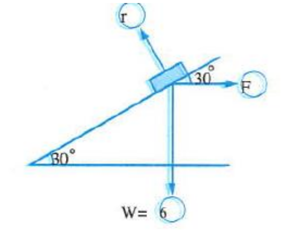
18 A body of weight 6 newton is placed on smooth plane inclined to the horizontal at an angle 30° it kept in equilibrium by horizontal force of magnitude F , then F = ... newton.

19 **In the opposite figure :**

r = ...

(a) $2\sqrt{3}$ (b) $3\sqrt{3}$

(c) $4\sqrt{3}$ (d) $6\sqrt{3}$



20 **In the previous figure :**

The component of the weight in the direction of the greatest slope to the bottom = ... N

المراجعة رقم (3)











First term

Sec 2

Math applications

Math department

1) If the resultant of the two forces F and 3 F kg.wt. is perpendicular to one of them , then the magnitude of their resultant equals .... kg.wt.

(a) $\sqrt{2}$ F (b) 4 F (c) $2\sqrt{2}$ F (d) 2 F

2) If the resultant of two forces meeting at one point is $R \in [5 , 19]$, where $F_1 > F_2$, then $F_1 =$ ....

(a) 7 (b) 12 (c) 5 (d) 19

3) Two perpendicular forces of magnitudes 2 F – 5 , F + 2 newton act at a particle , the magnitude of their resultant is $3\sqrt{5}$ newton. , then F = ... newton.

(a) 2 (b) 3 (c) 4 (d) 5

4) Three forces meeting at one point are in equilibrium , if the magnitudes of two forces of them equals 7 , 3 newton , then the value of the third force may be equals .... newton.

(a) 11 (b) 2 (c) 5 (d) 3

5) If the forces $\overrightarrow{F_1} = (a , 7)$, $\overrightarrow{F_2} = (-5 , -b)$, $\overrightarrow{F_3} = (1 , 1)$ are equilibrium , then (a , b) = ...

(a) (4 , 2) (b) (1 , 2) (c) (4 , 8) (d) (– 4 , – 8)

6) Two forces of magnitude 16 , F gm.wt. the measure of the angle between them $\in]0 , \pi[$ and the resultant bisects the angle between them , then F = ... gm.wt.

(a) 4 (b) 8 (c) 12 (d) 16

7) Two forces of magnitudes 5 F , 2 F newton act at a point , the magnitude of their resultant is 7 F , then the measure of the angle between them = ...

(a) 0° (b) 90° (c) 180° (d) 60°

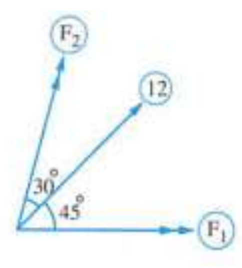
8) Two forces of magnitude 4 , F newton act at a point , the measure of the angle between them is 120° , if the resultant is perpendicular to the first force , then the resultant = ... N.

(a) $4\sqrt{2}$ (b) $4\sqrt{3}$ (c) $4\sqrt{5}$ (d) 4





9) If the force 12 N. , resolved into two component F_1 and F_2, then F_1 = ... N



(a) 12 cos 75° (b) 12 cos 45°
(c) 6 csc 45° (d) 6 csc 75°

10) A body (w) is placed on plane inclined by angle (θ) to the horizontal , then the magnitude of the component of its weight in direction perpendicular to the plane ....

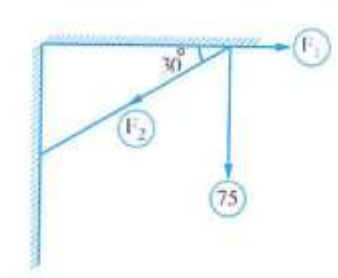
(a) w sin θ (b) w cos θ (c) w tan θ (d) w csc θ

11) A body of weight (W) newton is placed on a smooth plane inclined with the horizontal at an angle of measure 30° and kept in equilibrium by the effect of force of magnitude 36 newton acts in the direction of the line of greatest slope of the plane upwards. , then the magnitude of the weight = ... newton.

(a) 36 (b) $72\sqrt{3}$ (c) 72 (d) $36\sqrt{3}$

12) **In the opposite figure :**

A vertical force of magnitude 75 newton is resolved into two components , one of them is horizontal (F_1) and the other F_2 , then F_2 = ... newton.



(a) 75 (b) $75\sqrt{3}$
(c) 150 (d) $150\sqrt{3}$

13) Force of magnitude $4\sqrt{2}$ N. acts in east direction. It is resolved into two perpendicular directions, then its component in the direction of north of the east equals .... N.

(a) zero (b) $4\sqrt{2}$ (c) 4 (d) 6

14) A body of weight (W) newton is suspended by two light strings inclined to the vertical by angles θ° and 30° the body becomes in equilibrium when the tension of the first string equal 12 newton. and the other is $12\sqrt{3}$ newton , then the weight of the body W = ... N.

(a) 60 (b) 25 (c) 36 (d) 24

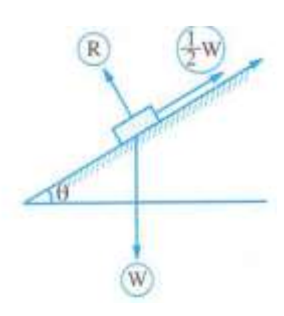
15) If $\overrightarrow{F_1}$, $\overrightarrow{F_2}$ are two forces , then the measure of the angle enclosed between $\overrightarrow{F_1}$ and the resultant of the two forces $(\overrightarrow{F_1} + \overrightarrow{F_2})$, $(\overrightarrow{F_1} - \overrightarrow{F_2})$ equals ....

(a) zero. (b) $\tan^{-1}\left(\frac{F_1}{F_2}\right)$ (c) $\tan^{-1}\left(\frac{F_2}{F_1}\right)$ (d) $\tan^{-1}\left(\frac{F_1 - F_2}{F_1 + F_2}\right)$



16) **In the opposite figure :**

If the body is in equilibrium under acting of the shown forces , then m (∠ θ) = ...

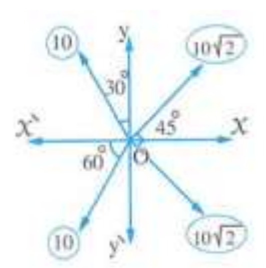


(a) 30°　　(b) 60°

(c) 45°　　(d) 15°

17) **In the opposite figure :**

The resultant of the system of forces "R" = ... newton.



(a) 20　　(b) $10\sqrt{2}$

(c) 10　　(d) zero.

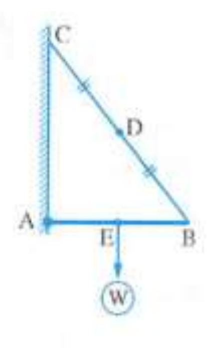
18) If the three coplanar forces $\overrightarrow{F_1} = 5\,\hat{i} + 3\,\hat{j}$, $\overrightarrow{F_2} = a\,\hat{i} + 6\,\hat{j}$, $\overrightarrow{F_3} = -14\,\hat{i} + b\,\hat{j}$ act at a point and their resultant $\overrightarrow{R} = \left(10\sqrt{2} , \frac{3}{4}\pi\right)$, then a + b = ...

(a) – 1　　(b) 1　　(c) zero.　　(d) 14

19) **In the opposite figure :**

$\overline{AB}$ is a uniform rod fixed to a hinge at A to a vertical wall.

It's kept horizontally by a string fixed to point B and the other end of the string is fixed to point C on the wall above A.



Which of the following is the triangle of force ?

(a) Δ DBE　　(b) Δ DEA　　(c) Δ ADE　　(d) Δ ACD

20) The ratio between the edge length of the triangular regular faces pyramid : its height = ...

(a) $\sqrt{2} : \sqrt{3}$　　(b) $\sqrt{3} : 2$　　(c) $\sqrt{6} : 2$　　(d) $\sqrt{3} : 3$

21) Three coplanar forces of magnitudes 60 , F and K newton meeting at a point and in equilibrium. If the angle between the 1st and the 2nd forces measures 120° and between the 2nd and the 3rd measures 90° , then the value of K = ... newton.

(a) $30\sqrt{3}$　　(b) $30\sqrt{2}$　　(c) 30　　(d) 60



22) A right cone of volume 27π cm^3, circumference of its base 6π cm.

, then its height. = ... cm.

(a) 27 (b) 3 (c) $3\sqrt{3}$ (d) 9

23) A regular quadrilateral pyramid, the side length of its base 10 cm., and its slant height 13 cm., then its lateral area = ... cm^2

(a) 260 (b) 360 (c) 130 (d) 520

24) If we folded the opposite net to become a cone

, then the radius length of its base = ... cm.

20 cm.
M
N

(a) 10 (b) 8

(c) 5 (d) 2.5

25) The volume of right cone, where the length of its drawer 15 cm. and the total surface area = 216π cm^2 equals .... cm^3

(a) 205π (b) 320π (c) 380π (d) 324π

26) The radius length of the base of a right circular cone is 15 cm., and its height = 20 cm., then its lateral area = ... cm^2

(a) 600π (b) 375π (c) 1875π (d) 5625π

27) The centre of the circle : $2x^2 + 2y^2 - 6x + 8y = 0$ is the point ....

(a) $(3, -4)$ (b) $(-4, 3)$ (c) $\left(\frac{3}{2}, -2\right)$ (d) $(-3, -4)$

28) The least number of planes could form a solid is ....

(a) 1 (b) 2 (c) 3 (d) 4

29) If $\overrightarrow{F_1} = 2\hat{i} - 2\hat{j}$, $\overrightarrow{F_2} = 4\hat{i} - 8\hat{j}$ and their resultant $\overrightarrow{R} = 2a\hat{i} - 3b\hat{j}$, then a + b = ...

(a) 3 (b) $3\frac{1}{3}$ (c) $6\frac{1}{3}$ (d) 12

30) The equation of the circle with area 81π square units and its centre lies in the second quadrant and touches the y-axis could be ....

(a) $(x+3)^2 + (y-5)^2 = 25$ (b) $(x+4)^2 + (y-3)^2 = 25$

(c) $(x-6)^2 + (y+4)^2 = 36$ (d) $(x+9)^2 + (y-14)^2 = 81$



31) Which of the following equations represent equation of a circle ?

(a) $3x^2 + 2y^2 + 6x - 8y - 10 = 0$
(b) $x^2 + y^2 + 4x + 25 = 0$
(c) $2x^2 + 2y^2 - 12x + 8y - 30 = 0$
(d) $x^2 + y^2 + 2xy + 3 = 0$

32) The equation $(x \quad y \quad 8)\begin{pmatrix} x \\ y \\ -2 \end{pmatrix} = \square$

represents a circle its diameter length = ... length unit.

(a) 2 (b) 4 (c) 6 (d) 8

33) A right circular cone its base touch the two positive axes in x y-plane and its drawer is twice its radius base length , the volume of a cone is $72\sqrt{3}\,\pi$ cm^3.

, then the equation of its base is ....

(a) $(x-5)^2 + (y-5)^2 = 25$
(b) $(x-3)^2 + (y-3)^2 = 9$
(c) $(x-6)^2 + (y-6)^2 = 36$
(d) $(x-2)^2 + (y-2)^2 = 4$

34) A regular pyramid its base is hexagon its side length 8 cm. and its height 10 cm.

, then its volume equal = ... cm^3.

(a) $320\sqrt{3}$ (b) $960\sqrt{3}$ (c) $160\sqrt{3}$ (d) 554.35

35) **In the opposite figure :**

A body of weight 150 gm. wt.
is in equilibrium by suspended by two perpendicular strings their lengths are 60 cm. , 45 cm.
and the other ends are fixed at C and B
on the same horizontal line , then $T_2 - T_1$ = ... gm.wt.

(a) 120 (b) 90 (c) 60 (d) 30

36) Two lines are skew if ....

(a) they are not parallel.
(b) they are not intersecting.
(c) they are not coincident.
(d) they are not on the same plame.





37) The least number of planes can determine a solid is .... planes.

(a) three (b) four (c) two (d) five

38) In a trianglular pyramid of regular faces , if the sum of lengths of its edges = 36 cm. , then the height of the pyramid = ... cm.

(a) $\sqrt{6}$ (b) $2\sqrt{6}$ (c) 6 (d) 4

Essay questions :

1) A sphere of radius length 10 cm. and of weight 30 gm.wt. is suspended from a point on its surface by a string of length 10 cm. , the other end of the string is fixed on a smooth vertical wall. Find in case of equilibrium the tension of the string and the reaction of the wall.

2) $\overline{AB}$ is a uniform rod of weight 20 kg.wt. the end A attached to a hinge fixed on a vertical wall a horizontal force F acts at B , the rod is in equilibrium when it inclined by angle 30° with vertical , find the magnitude of each of the force and reaction of the hinge.

3) $\overline{AB}$ is a uniform rod with length 60 cm. and weight 40 newton is connected to a hinge on the vertical wall at A , if the rod kept in equilibrium horizontally by a light string connected to the rod at B and with point C on the wall just above A and at a distance 60 cm. from A , find the tension on the string and the reaction on the hinge at A

4) Write the general form of the equation of the circle if the two points A (4 , 2) , B (– 1 , – 3) are the end points of its diameter.

5) A regular quadrilateral pyramid , the side length of its base is 18 cm. , its volume 1296 cm^3. find its slant height and its lateral surface area.

6) Write the equation of the circle which touches the X-axis at the point (– 2 , 0) and intersepts from the positive part of y-axis a chord of length $4\sqrt{3}$ length unit.

حمل الآن

مجانا وحصريا

امتحانات رقم (1)









وزارة التربية والتعليم
الإدارة المركزية لتطوير المناهج
مكتب مستشار الرياضيات

Model Exam of Second year secondary First Term 2023- 2024

Math Applications **Time: 3 hours**

استرشادى تطبيقات رياضيات للصف الثانى الثانوى للعام الدراسى ٢٠٢٣ / ٢٠٢٤م

First: Choose the correct answer

1) **Two forces of magnitudes 3, 5 Newtons act at a point. The measure of the angle between them is 60°. Then, The magnitude of their resultant =….. Newton.**

A 7 | B 6 | C 5 | D 9

2) **Two forces of magnitudes F_1, F_2 ($F_1<F_2$) , mag. Of their resultant $\sqrt{3}F_1$. and the resultant inclines 30° to the force F_2 , then $F_1 : F_2$ = ….**

A 1 : 2 | B 1 : 3 | C 1 : $\sqrt{3}$ | D $\sqrt{3}$: 2

3) **The forces $\overrightarrow{F_1}, \overrightarrow{F_2}$ are opposite in direction, then their resultant equals ….**

A $F_1 + F_2$ | B $\overrightarrow{F_1} - \overrightarrow{F_2}$ | C $F_1 - F_2$ | D $\overrightarrow{F_1} + \overrightarrow{F_2}$

4) **A body of weight 6 newton is placed on a smooth plane inclined to the horizontal by an angle of measure 30°. then the components of the weight in the direction of the line of the greatest slope …..newton**

A 12 | B 6 | C 3 | D $3\sqrt{3}$

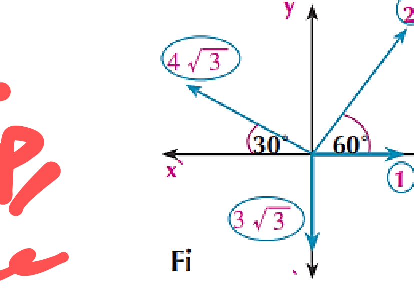
5) **If the force $\overrightarrow{R}$ is resolved into two components $\overrightarrow{F_1}, \overrightarrow{F_2}$ which make with the force $\overrightarrow{R}$ two angles of measures 30°, 45° from different directions of its line of action, $||\overrightarrow{R}||$ = 12 newton, then F_1 = ... Newton, F_2 = ... Newton respectively**

A 8.8, 6.2 | B 6.2, 8.8 | C 8.8, 9.2 | D 9.2, 8.8

6) **If the resultant of the two forces $\overrightarrow{F_1} = 3\hat{\imath} - \hat{\jmath}$, $\overrightarrow{F_2} = 5\hat{\imath} - 6\hat{\jmath}$ is $\overrightarrow{R} = 2a\hat{\imath} - 7b\hat{\jmath}$, then $a = \cdots, b = \cdots$respecively**

A 1, 4 | B 3, -4 | C -3, 4 | D 4, 1

7) **In the opposite figure**
If the resultant is $\overrightarrow{R} = a\hat{\imath} + b\hat{\jmath}$, then $b = \cdots$



A -4 | B Zero | C 3 | D 4





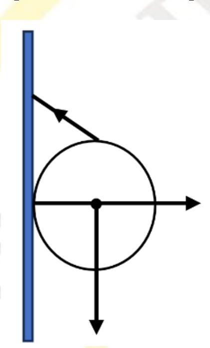
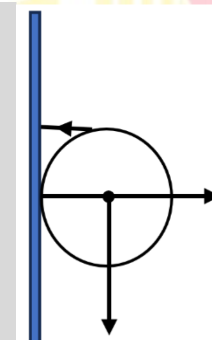
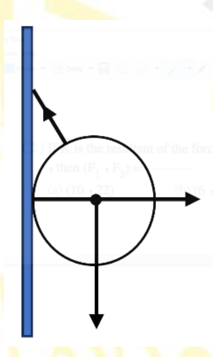
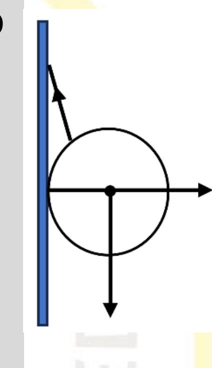
8) **If $\vec{R}$ is the resultant of the two forces $\overrightarrow{F_2}, \overrightarrow{F_1}$, θ is the measure of the angle between $\overrightarrow{F_1}, \overrightarrow{F_2}$ and $\frac{\theta}{2}$ is the angle between $F_1, \vec{R}$. Which of the following statments is correct**

A $F_1 = 2F_2$ B $F_2 = 2F_1$ C $F_1 \times F_2 = 1$ D $F_1 = F_2$

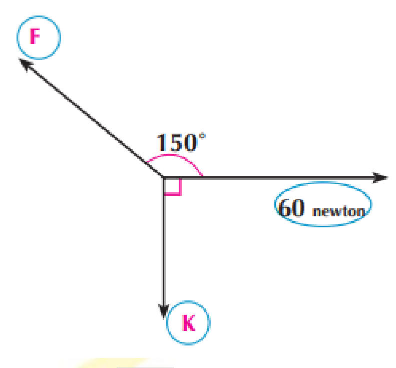
9) **If the force of magnitude 13 is in equilibrium with the two perpendicular forces of magnitudes: 12, F Newton are, then F=….N**

A **17** B **13** C **7** D **5**

10) **A metallic smooth uniform sphere is suspended from a point on its surface by a string and its other end is fixed at a point in a smooth vertical wall to be in equilibrium as it rests on the wall. Which of the following shapes represents the the sphere in equilibrium position**

A

B

C

D


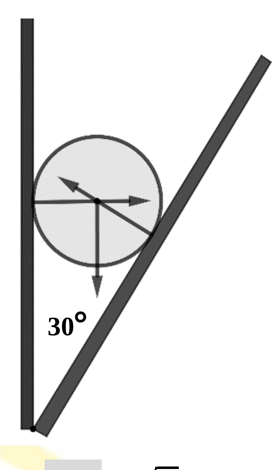
11) **In the opposite figure:**
If the forces in equilibrium, then F=…Newton



A **60** B **120** C **$120\sqrt{3}$** D **$40\sqrt{3}$**



12) **The opposite figure represents a smooth metal sphere of weight 3 Newton at rest (stable) between a smooth vertical wall and a smooth plane inclined to the vertical wall with angle of measure 30°. the pressure on the vertical wall =…. Newton**



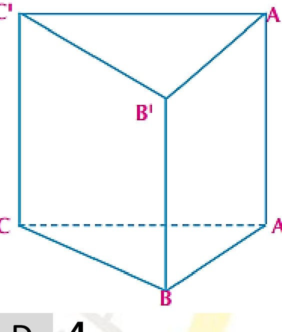
A **3**	B $3\sqrt{3}$	C **6**	D $6\sqrt{6}$

13) **Which of the following doesn't identify plane?**

A **Three non-collinear points**	B **A straight line and a point on it**
C **Two parallel lines**	D **Two intersecting lines**

14) **In the opposite figure**

The number of straight lines that skew with the line $\overleftrightarrow{AA'}$ is …

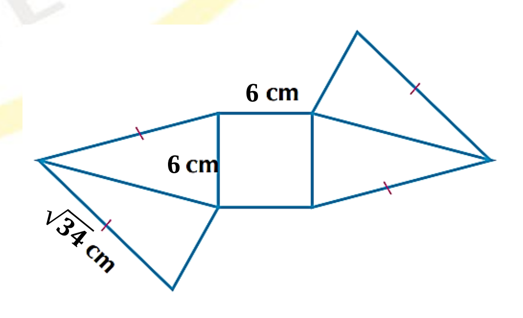


A **0**	B **2**	C **3**	D **4**

15) **In the regular pyramid, if a is the length of the lateral edge, b is the length of the height of the pyramid, c is the length of the slant height, then**

A $a < b < c$	B $a < c < b$	C $b < a < c$	D $b < c < a$

16) **The opposite figure represents a regular pyramid net, tthen the volume of the pyramid = ….**

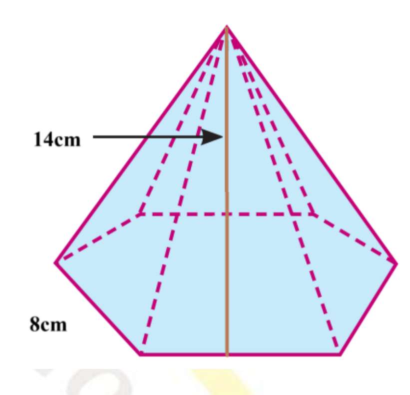


A **48**	B **24**	C **26**	D 34

17) **The lateral area of a right cone of base radius 15 cm, and its height 20 cm. is …π cm²**

A	300	B	375	C	500	D	625

18) **The opposite figure represents a regular hexagonal pyramid. The lengths of the base's side and the slant height are 8cm, 14cm respectively, then the pyramid's lateral area=….cm²**



A	128	B	256	C	336	D	420

19) **The equation of the circle whose diameter $\overline{AB}$ where A(2, -7), B(6, 5) is …**

A	$(x-4)^2+(y+1)^2=40$	B	$x^2+(y+1)^2=40$
C	$(x-4)^2+(y-1)^2=50$	D	$(x-4)^2+(y+1)^2=50$

20) **The radius length of the circle $x^2+y^2-12x+4y-9=0$ equals …**

A	3	B	9	C	7	D	49

<u>Second: Answer the following questions</u>:

[1] two forces of magnitude $F, F\sqrt{2}$ Newton act at a point, their resultant is perpendicular to the first force. Find the measure of the angle between the two forces.



[2] find the general form of the equation of circle whose centre M(7, -5) and passes through the point A(3, 2).





وزارة التربية والتعليم
الإدارة المركزية لتطوير المناهج
مكتب مستشار الرياضيات

نموذج إجابة اختبار استرشادي نهاية الفصل الدراسي الأول
الصف الثاني الثانوي (علمي)   المادة: تطبيقات الرياضيات

First: M.C.Q. questions (mark for each one)

Question number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Correct choice	A	A	D	C	A	D	B	D	D	C	D	B	B	B
Question number	15	16	17	18	19	20								
Correct choice	D	A	B	C	A	C								

Second essay questions

Question 1 (2 marks)

$F + F\sqrt{2}\cos\alpha = 0$ (١)

$\therefore \cos\alpha = -\frac{1}{\sqrt{2}}$ ($\frac{1}{2}$)

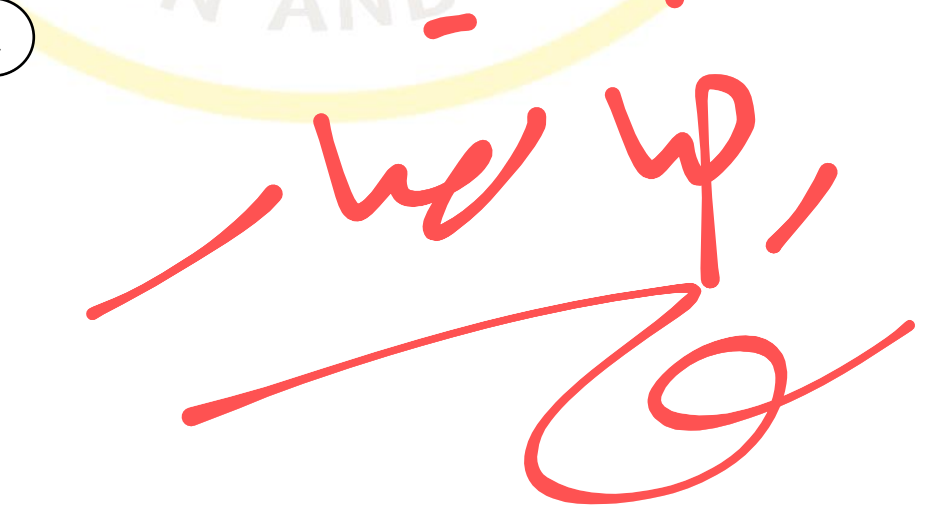
$\therefore \alpha = 135$ ($\frac{1}{2}$)

Question 2 (3 marks)

$r = \sqrt{4^2 + 7^2} = \sqrt{65}$ ($\frac{1}{2}$)

$\therefore (x-7)^2 + (y+5)^2 = 65$ (1)

$\therefore x^2 + y^2 - 14x + 10y + 9 = 0$ ($\frac{1}{2}$)



اسئلة استرشادية للصف الثانى الثانوى

رياضيات (٢) للقسم العلمى باللغه الانجليزية

Q1

The magnitude of the maximum resultant of two forces F_1 , F_2 is 10 Newton and the magnitude of the minimum resultant of the two forces is 2 Newton. then $F_1^2 - F_2^2$ =……, when $F_1 > F_2$

a) 20

b) 24

c) 8

d) 12

Q2

If F_1 = 5 Newton, F_2 = 4 Newton act at a point, and α is the angle between their lines of action of the two forces, sin $\alpha = \frac{3}{5}$ then the magnitude of their resultant =…………, $\alpha \in \left]0 , \frac{\pi}{2}\right[$

a) $\sqrt{65}$

b) $\sqrt{11}$

c) 3

d) $\sqrt{73}$

Q3

A regular quadrilateral pyramid, its volume 96 cm^3 , its height 8 cm,

Then its base side length =……….cm

a) 72

b) 36

c) 6

d) 12

Q4

A right circular cone, its base area 36 π cm^2 , its height 8 cm,çthen its drawer length = ………cm

a) 12

b) 10

c) 8

d) 6

Q5

$\overline{BC}$ is a uniform rod of length one meter and its weight (w) Newton is suspended from its two ends by two perpendicular strings their other end fixed at a point on the ceiling of a room , if the length of one of the two strings equals 50 $\sqrt{3}$ cm, find the magnitude of the tension in strings in terms of the weight of the rod (w).

Q6

Two forces are meeting a point the magnitude of their maximum resultant = 14 Newton and when the two forces are perpendicular the magnitude of their resultant = 10 Newton, then F_1 =…… Newton,

F_2 =……... Newton

a) 6 , 8

b) 9 , 5

c) $5\sqrt{2}$, $5\sqrt{2}$

d) 5 , $5\sqrt{3}$

Q7

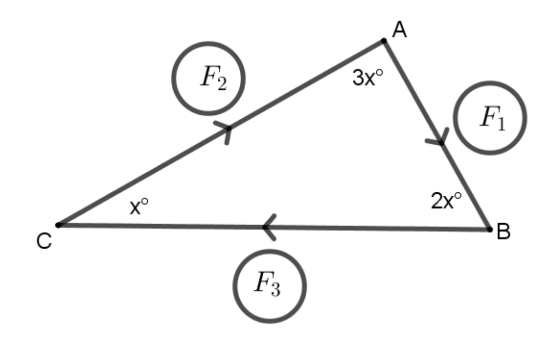
The coplanar forces of magnitudes 1, 2, $3\sqrt{3}$, 4 Newton are acting at a point where the measure of the angle between the directions of the first force and the second force is $\frac{\pi}{3}$, the second force and the third force is $\frac{\pi}{2}$ and between the third force and the fourth force is $\frac{5\pi}{6}$.

Find the magnitude and the direction of their resultant.

Q8

In the opposite figure:

Δ ABC is the triangle of forces of the three equilibrium forces that act at a point.



Then $F_1 : F_2$ =..........

a) 1 : 2

b) 1 : $\sqrt{3}$

c) 2 : 3

d) $\sqrt{3}$: 2

Q9

Two forces of magnitude 8 and F Newton act at a point, the measure of the angle between them is 135°, if the resultant inclined with an angle of measure 45° to the force F, then:

F =……. Newton

a) $8\sqrt{2}$

b) 8

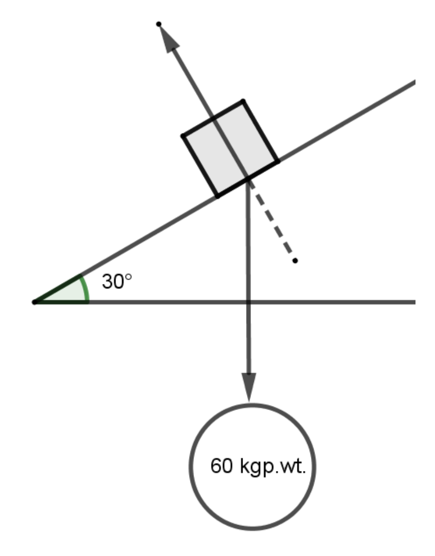
c) $18\sqrt{2}$

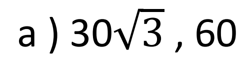
d) $16\sqrt{2}$

Q10

In the opposite figure:

The component of the weight in the direction of the line of the greatest slope =.......... kg wt, the component of weight in direction perpendicular to plane = ... kg wt.



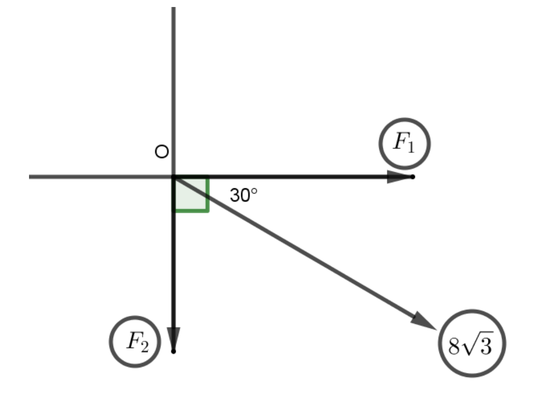

a) $30\sqrt{3}$, 60

b) 60 $\sqrt{3}$, 60

c) 60 , $60\sqrt{3}$

d) 30 , $30\sqrt{3}$

Q11



Force of magnitude 8 $\sqrt{3}$ Newton is resolved into two perpendicular forces F_1 , F_2 ,then $\frac{F_1}{F_2}$ =.....

a) $\sqrt{3}$

b) $\frac{1}{\sqrt{3}}$

c) $\frac{\sqrt{3}}{2}$

d) $\frac{1}{2}$

Q12

A regular quadrilateral pyramid, the perimeter of its base is 16 cm and whose height 9 cm is put inside a container in the shape of a right circular cylinder, contains water. If the level of water raises $\frac{21}{88}$ cm, Find the radius length of the base of the cylinder given that ($\pi \simeq \frac{22}{7}$).



كيفية طباعة صفحات معينة من ملف معين



مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9

خطوة 1

خطوة 2 اختيار اسم الطابعة بتاعتك

خطوة 3 كتابة الصفحات المراد طباعتها نكتب رقم 4 ثم نكتب الشرطة دي – ثم نكتب 9

خطوة 4 اختيار نوع الورق

خطوة 5 اختيار A4

خطوة 6